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*Manuscripts of the late Sir H. ELLIOT, K. C. B. by Dr. A. SPRENGER, Secretary, Asiatic Society.*

Lady Elliot having permitted me to examine the papers and books of her late husband, Sir Henry E., I am enabled to give some account—though in the whole not a very precise one, of the great work—the Indian Historians, on which he was engaged several years previous to his lamented death.

He says in his preface to the first volume; “A few months since (this was in 1846) the compiler of this Catalogue was engaged in a correspondence with the Principal of the College at Delhi (the writer of these lines) on the subject of lithographing a uniform edition of the Native Historians of India. On referring the matter to His Honor, the Lieutenant-Governor N. W. P., it was replied that the Education Funds at the disposal of the Government, were not sufficient to warrant the outlay of so large a sum as the scheme required, and without which it would have been impossible to complete so expensive an undertaking. At the same time it was intimated, that, as few people were acquainted with the particular works which would be selected to form such a series, it would be very desirable; that an Index of them should be drawn up, in order that the manuscripts might be sought for and deposited in one of our College Libraries, to be printed or lithographed hereafter, should circumstances render it expedient and should the public taste, at present lamentably indifferent, show any inclination for greater familiarity with the true sources of the Mohammedan History of India.”

“The author willingly undertook this task, as it did not appear to offer much difficulty.”

Sir Henry possessed, when he undertook this labour, a very valuable collection of books on Indian History, and a more extensive knowledge of the subject than any body else either in this country or in Europe, and was able to draw up in a very short time, a list containing an unexpectedly great number of Historical works replete with useful notices regarding their contents, merits and authors. Fortunately the MS. of this first draft is preserved, and will be a most useful guide for the editor of his papers.

Before he gave the first draft of his labour to the public, he extended his plan. He says on this subject, “The mere Index which the author was invited to compile, has insensibly expanded into several volumes; for encouraged, not only that no work had ever been written specially on this matter, but also by receiving from many distinguished orientalisks both European and Native, their confessions of their entire ignorance on the subject of his enquiries, he was persuaded that it would be useful to append, as far as his knowledge would permit, a few notes to each History, as it came under his consideration, illustrative of the matter it comprehends, the style, position, and prejudices of the author, and the merits or deficiencies of his execution.”

The work on this extended plan was calculated to form four volumes, the first of which was published in 1849. Prefixed to it is the scheme of the whole labour. It was to contain notices of, and extracts from 231 historical works. The first volume according to this plan was to contain sixty-seven, but it contains only thirty-one, and it is therefore clear that the number of volumes would have exceeded that of four.

He continued his search for books after the publication of the first volume, and in 1849 he published in the Persian language a list of desiderata under the title of *Miçbâh altâlibyn*. It contains a number of valuable bibliographical notices regarding the books in request, and at the end is added a list of books on Indian Historiography, of which he had copies. His endeavours were crowned with success, and he obtained copies or the loan thereof, of several of the works he was seeking for.

The increased number of materials, and the great interest which his friends in Europe took in his important labours prevailed upon him to enlarge the plan and to give, in the shape of extracts and notes, a complete history of Muhammadan India, which was to fill no less than twelve volumes, and would probably have far exceeded that number. The following are his own words on the plan of the work.

“The unexpected favour with which the first volume of this work has been received by the orientologists of Europe, has induced the author to extend his original plan, so as to admit of its embracing not only a Bibliography of Historians, but a complete History of Muhammadan India according to the following scheme.

“Vols. I. and II. General Histories of Mohammedan India, *Guzerát—Málwa—Deccan.*

“Vol. III. Arabs—Ghaznawides.

“Vol. IV. Ghorians—Khiljis—Tuglaks.

“Vol. V. Timúr—Sayyids—Afg háns.

“Vols. VI. and VII. General Histories of the Timúrian dynasty, *Mahrattas—Rohillas—Jats, &c. &c.*

“Vol. VIII. Timúrians in their rise. Báber—Humayún—Akber.

“Vol. IX. Timúrians in their splendour. Jahángyr—Sháhjehán—Aurangzeb.

“Vol. X. Timúrians in their decline. Bahádur Sháh to Ahmad Sháh.

“Vol. XI. Timúrians in their fall. 'Alamgyr II.—Sháh 'Alam.

“Vol. XII. Original extracts.”

All that is printed of the work on this extensive plan is an “Appendix to the Arabs in Sindh, vol. III. part 1. of the *Historians of India*. Cape Town, 1853.” This little volume contains a mass of the most valuable information and interesting historical parallels on a period on which it was not to be expected that so much light would ever be thrown.

But he has left an abundance of materials for the remaining volumes; and I will now endeavour to give an idea of those which I have seen; there are, however, many translations which I have not had an opportunity of seeing.

They may be divided into four classes. Papers ready for the press, English notes, Persian extracts, and Persian works bearing on the subject.

The Manuscript of the Notices on the *General Histories* of Moham-  
medan India, is copied out in a fair hand, carefully corrected and  
ready for the press. Even if the first part, which was printed in 1848,  
is continued and not superseded, as was the intention of the author,  
the manuscript of the General Histories ready for the press will fill  
two thick volumes.

The third volume—on the Ghaznawides—is nearly ready for the  
press, and so is the ninth, the reigns of Jahángyır and Sháhjahán  
being all but completed.

We have therefore four volumes of his valuable work ready for  
the press, or very nearly so, and I have reason to believe that the  
translations, &c. which I have not had an opportunity to examine  
would fill an other volume.

The English notes which he left, are innumerable. He had read  
every book on the subject with the pen in his hand, and the number  
and extent of his erudite references, extracts and remarks, is perfectly  
incredible. It will, however, be very difficult to make a proper use  
of them.

The Persian extracts are of very great importance. His acquaint-  
ance with the historical literature of India, enabled him at first  
sight to select such passages from each work as contain new facts  
and illustrate each other. I believe that he has made extracts of *all*  
Indian Histories of which he had no copies in his own collection, and  
in so far the *materials* for the work are complete. I have unfortun-  
ately not been able to arrange and catalogue these extracts for want  
of time.

A List of Persian works which he left, including those which do  
not bear on Indian Historiography is here annexed. It has been  
drawn up in very great haste, and is therefore imperfect, and probably  
not free from mistakes. Besides Sir Henry's own works,—which I  
distinguish by the letter E, his collection contains also some MSS.  
which belong to other parties, but which he had borrowed and were  
among his books at the time of his death. The name of the proprietor  
is always mentioned. Pencil notes in the fly-page have, in most in-  
stances, been copied into this list and marked with inverted commas.

All books are in Persian, unless it is particularly mentioned that  
they are in another language.

1. جامع التواريخ. Part of the Jámí' altawárikhe Rashdy. This fragment begins with the genealogy of Soboktogyn and comes down to the *Second Part containing the history of the Nizárians and their emissaries*. The last rubric is ذكر امام الدولة وجلوس کیا حسن بن محمد.

Beginning این تاریخ مختصر ایست مشتمل بر شرح حال مقامات سلطان محمود بن سبکتگین

E. folio 494 pp. of 17 lines, new, beautifully written.

2. تاریخ خطای. "This is the Indian part of the Jámí' altawarykh obtained from Muradábád." See Ind. Hist. p. 1.

Beginning ممالک اقوام مذکوره چند پاره ولایت معظم است

E. a new copy, 326 pp. of 11 lines.

3. انتخاب از تاریخ گزیده. The third façl of the fourth chapter of the Tarykhe Guzydah treating on the Ghaznawides. See Ind. Hist. p. 75.

E. 28 pp. of 17 lines, Svo. bound with four pages from the Mirät al'alam, on the inroads of the Arabs in Sind, and extracts from Khayr aldyu's Jawnpúr-námah, 4 pp. also extracts from Azád's Khizánah 'ámirah (see my catalogue I. p. 143) 20 pp. of 15 lines, and extracts from the Akbar-námah, 30 pp.

4. خلاصه الاخبار في بيان احوال الاخير. Kholáçat alakhbár by Khwánd Amyr. See Ind. Hist. p. 106.

Beginning

خلاصه كلمات راویان اخبار انباء عالی مقدار و نقاوه منشیات واقعات

E. 666 pp. of 21 lines, a fine old copy.

5. منتخبات کتاب تاریخ الفی. Extracts from the Tarykh Alfı, containing the passages bearing on India. See Ind. Hist. p. 143.

Beginning از ذکر وقایع سنه ثمان وستین از رحلت اما عبد الله بن ابو بکر چون بملک نیم روز رسید

E. 315 pp. of 13 lines, a complete copy is in the possession of Wiláyat Hosayn of Cawnpore, and the first half is in possession of A. Sprenger, a thick volume in folio.

6. طبقات اکبری. Tabaqát Akbary (see Ind. Hist. p. 178.)

Beginning سپاس رفعت اساس بادشاه حقیقی را سزا که حل و عقد

As. Soc. No. 87, 127 pp. of 21 lines.

7. زبدة التواريخ, Zobdat altawárykh. See Ind. Hist. p. 281.

Beginning خطبه کبریا و جلال بنام شاهنشاهی سزد که عالم و هرچه در عالم

E. 508 pp. of 15 lines copied in 1117. Another copy 391 pp. of 13 lines.

8. Chronological Tables from 101 to 1040. "This is the ninth Faç of the Shalyde Çádiq." The author is Mohámmad Çádiq, who has also written the Çubh Çádiq on which see Miçbáh, p. 21.

Beginning فصل در علم اخبار و سیروان عبارت است از معرفت قصص انبیا و احوال ملوک و سلاطین

9. لب التواریخ. A Survey of the History of India by Bindrában, a son of Ráy Bahará Mal, composed in 1101.

It is divided into ten chapters فصل. 1. Kings of Dilly. 2. Deccan. 3. Guzrát. 4. Malwa. 5. Khandeish. 6. Bengal. 7. The eastern country (Oudh). 8. Sind. 9. Multán. 10. Kashmyr.

Beginning بادشاهی بی زوال مرخدای راست

E. written in elegant Shikastah in 1194. It was compared under the directions of Sir H. with another copy, and omissions were filled up, 320 pp. of 15 lines.

10. مرآت جهان نما. A History of India preceded by notices on general history by Shaykh Mohámmad Baqá, collected by his nephew Mohámmad Shafy'.

Beginning wanting

Folio, 768 pp. of 19 lines.

11. هفت گلشن محمد شاهي. A History of the Dynasties of India by Mohámmad Hádiy who had the title of Kámwar Khán, dedicated to Mohámmad Sháh, compiled in 1132.

Bg. الحمد لله رب العالمین و العاقبة للمتقين که قدرت بالغه و حکمت

E. 495 pp. of 11 lines.

12. خلاصه التواریخ. A History of India which comes down to Mohámmad Shujá' a son of Sháhjahán probably by Subhán Ráy.

Beginning نقاش نگارخانه کا ئنات و مصور کارخانه ممکنات

E. 267 pp. of 19 lines.

13. تواریخ هند. A History of India by Rostam 'alyy, who flourished (according to a pencil note) in 1154. It contains also biographical notices of men of learning, saints, &c.

Beginning

حمد سپاس مردواربوا که بردوار دور ملک سلطنت حشمت را بمنشاء کریمه

E. Svo. 652 pp. of 11 lines.

14. چهار گلشن. A History of India with notices on Castes, Sects Darwyshes, &c. by Chatur Man Ráy.

Beginning اجرایی مسمی بچهار گلشن مولفه مظهر دانش و بینش

E. 4to. 129 pp. 13 lines. There is a reference in the book, to a copy in possession of Nawáb 'alyy Mohámmad Khán.



15. مجمع الاخبار. A History of India from the earliest time to our days by Har Sukh Ráy, compiled in 1214.

Beginning فرساي قسم تر زبان منشيان فصاحت بيان وجبهه فرساي  
خانه رطب اللسان

E. 1488 pp. of 15 lines.

16. منتخب التواريخ. A History of India, chiefly based on Firishtah by Sadá Sukh, compiled in 1234, and divided into two volumes.

Beginning of first vol. مخزن مخزن نقود حمد وسپاس ومعدن معدن

Beginning of second vol. مبني برده ايوان وشش حجرة مشتملبر

E. first vol. 439 pp. of 15 lines; second vol. 679 pp. of 15 lines.

17. زبدة الغرائب. History of Mohammad Ridhá Tabátabá whose takhalluḡ is Najm, and who is still alive and resides at Luenow. It is a work in several volumes of which this collection contains the first and fourth. The first commences with the creation and the fourth with Bábor, and comes down to Gháziy aldyn Haydar. It embraces also the biographies of philosophers, poets, saints, &c.

Beginning of fourth vol. (ninth chap.) بعد از حمد خداوند ونعت رسول  
'ally Akbar, 542 and 635 pp. of 17 lines.

18. جام جم. Chronological Tables of the History of India by Sayyid Ahmad Khán of Dilly.

Beginning از انجا كه گلزمين خير البقاع دهلي

Lithographed at Agra, 30 Tables.

19. تحفة الكرام. A General History with biographical notices of saints, men of learning, &c. more particularly of Sind by Shyr Qáni'. The title is a chronogram for 1154. It is divided into four parts مجلد.

Beginning بعد حمد خالقى كه اثارات كون مكان رشحه از عمان قدرت  
بيكران اوست

E. folio 736 pp. of 17 lines.

20. عجائب المخلوقات. A Persian translation of Qazwyny's Wonders of the Creation. "De Rossi Diz. 110, Hájí Khal. IV. 188. This valuable copy does not contain the chapters on cities and forts, which, Major Rawlinson says, he has seen in only one out of about one hundred copies—Journ. Geogr. Soc. Vol. X. p. 83." Translated under Abú-l-Motzaffar Ibráhyim 'ádilsháh.

Beginning العظمة لك والكبرياء لجلالك اللهم يا قايما الذات

E. two copies, one very splendid and old, 840 pp. of 19 lines, the other 542 pp.

21. شجاع حیدری. A Geography of India, Persia, &c. compiled under Jahágyr (reigned 1014—1037) by *Mohammad Haydar*.

Bg سپاس بیقیاس مرخالتی را که طبقات اسمان وزمین را درهوامعلق داشته  
E. 176 pp. of 17 lines, copied in 1238.

22. تاریخ محمدی. Chronological Tables by *Mohammad Bég Há-rithy Badakhshy* in two volumes, every line contains a date, and over every date the name of the authority is written in red ink. The copy before me contains only the second volume, which commences with 781 and comes down to 1190.

این دویت عربی که اسم احقر العباد میرزا محمد خصه الله  
في كل يوم

*Naçr Allah Khán*, Deputy Collector of 'alyygurh, an autograph, 1238 pp. folio.

23. عقد السواهر. Obituary (in Arabic) of one hundred years, beginning with 1001 by *Mohammad b. Abú Bakr*. It contains, year by year, the names of celebrated persons who died in it and their biography.

الحمد لله الذي انشا الموجودات بباهر قدرته واحيا

*Mohammad Hasan Péshkár* of *Kannawj*, 300 pp. of 22 lines, a good copy of an important work.

24. روضة اولی الالباب. A General History by *Abú Solaymán Dáwúd*, who was alive in 715. Beginning wanting.

E. 402 pp. of 21 lines.

25. تاریخ مرزا مبارک الله. The History of *Myrzá Mobárak Allah*, who flourished under *Farrokhsiyar*.

الحمد لمن يقول في حق كلامه فاتوا بسورة

'alyy *Mohammad Khán* of *Jhajhar*, 236 pp.

26. برهان الفتح. A Universal History by *Mohammad 'alyy b. Mohammad Çádiq Hosayny Nayshápúry* who was alive in 1148. It comes down to the author's life-time and contains many important dates.

نيكوترين سخنى كه قافله سالار كلمه و كلام

E. 426 pp. of 17 lines, an autograph written in 1148.

27. كتاب احسن التواريخ. A Universal History, by *Hasan b. Mohamady Kháky Shyrázy*, dedicated to *Akbar*. It comes down to A. H. 998.

زبان قلم و قلم زبانرا قدرت و قوت ان كجاست

E. small folio 662 pp. of 14 lines, of some age.

28. *منتخب التواريخ*. History, Biography and Geography from the beginning of the world by Ibn Darwys̄h Mohāmmad Balkhy. The latest date which I observed is 1119. Beginning

سبحانك لأعلم لنا إلا علمتنا إنك انت العليم الحكيم اعجبوه بكار عالم بوقلمون  
E. 332 pp. of 13 lines.

29. *جام جهاننما*. A General History from the creation, compiled by Qudrat Allah Çiddyqy in 1191. "But at folio 432, the year 1193 is mentioned." It is divided into 39 chapters *طبقه*.

Beginning *عالي كوهري كه زينت تاج سروران*

"Mohammad Mián's son (?) Sa'yd aldyn Ahmad Khán," 1378 pp. of 21 lines.

30. *مرآت آفتاب نما*. Geography, Biography and a Universal History, by Sháh Nawáz Khán. "Sháh Nawáz Khán died before 1809 or in it. He was Treasurer to the Myr Bakhshi and Khánsámán and received a monthly stipend of 2,500 Rupees." The book is divided into two Jalwah, which are subdivided into tajalliyy.

Beginning *مقالیکه خوش بالي لالي متلالي الفاظ ابدارش*

E. 623 pp. of 20 lines, copied in 1811.

31. *بادگار بهادري*. A Universal History by Bahádúr Singh, compiled in 1232. It contains much useful information regarding founders of new sects in India, saints, learned men, &c. also regarding the history of Oudh.

Beginning *بعد از سپاس ايزدی كه آفريننده عالم و عالميان است*

E. two volumes containing in all 2082 pp. of 17 lines, an autograph.

32. *بهجة التواريخ*. A General History by Shukr Allah, who is probably still alive. The latest date which I observed is 1263.

Beginning *الحمد لله الذي براكل شى ثم ارعاه و دراكل حى فافذاه*

E. 604 pp. of 11 lines.

33. *مجموعه خلاصة الاحوال*. A General History by Mohāmmad Çádiq, whose takhalluç is Akhtar (see my Catal. I. p. 599,) dedicated to Sir Henry Elliot. Beginning

*جواهر زواهر حمد و سپاس افزون تر از مقدار قياس نثار بارگاه كبرى*

E. 118 pp. of 13 lines.

34. *سلطان التواريخ*. A Universal History, containing considerable information regarding Oudh, by Ratan Singh a son of Ráy Bálak Rám. "Presented by the author about the time of his death, 1851.

I have seen the original MS. of this work which was dedicated to Naçyr aldyn Haydar."

Beginning سر بلند پایه سخن به یمن ستایش رفیع بارگاہی است کہ  
بنای چرخ مقرنس در وسعت کدۂ

E. 640 pp. of 11 lines.

35. ترجمہ عجایب طاهر القصص. A History of the Prophets including Mohámmad, in Urdú, by Mohámmad Fakhr aldyn Hosayn.

Beginning تبارك الله احسن الخالقين

E. Lithographed s. a et l. (Agra?) small folio, 692 pp. of 21 lines.

36. مفتاح التواريخ. Key of History, being a collection of the most valuable chronograms in the Persian language, also inscriptions of ancient buildings, collected by Thomas Beale. Beginning

E. Lithographed, Agra, 1849, 4to. 609 pp.

37. تاریخ رشیدی. History of Myrzá Haydar Gurgány.

Bg. افتتاح تاریخ جهان داری و ابتدا ظفر بختیاری حمد و سپاس حضرت  
'alyy Mohámmad Khán, 729 pp. of 14 lines.

38. تاریخ راجا ولی. A General History of India, by Munshiy Waly Rám, whose takhalluç was Walyy. The latest date which I observed is 1132.

Beginning بشنو زولی وفای دنیا ای شاه

E. two copies, one has 176 pp. of 9 lines, new.

39. تاریخ سعادت جاوید. A General History of India which comes down to Sa'ádat 'alyy Khán, who was succeeded in 1212 by Harnám Singh Námý, a son of Gurdás Singh.

Beginning حمد و ثنای درگاه صمدیت بر اصناف خلائق واجب باشد  
کہ جان در تن افریده صانع حکمت اوست

E. 503 pp. of 14 lines.

40. میزان دانش. A General History of India which comes down to the reign of 'álamgyr.

Beginning

E. 102 pp. 8vo.

41. دبیان احوال راجہ های عظیم الشان ہندوستان از راجہ جدشتر. An account of Hindú Rájahs from Jndhister derived from the Mahá-bhárata, apparently by a Hindú.

Beginning از تاریخ کتاب های ہندی خصوصاً مہابہارت

E. 8vo. near 100 pp. of 11 lines.

42. فصل المجالس. A General History in ten chapters. In

the commencement some pages are wanting, the book now begins کتب  
سیر و تواریخ و اخبار

E. 431 pp. of 13 lines.

43. چار چمن. A History and Geography of India, compiled by Dawlat Ráy in 1225. At the end is a table of distances.

Beginning حمد را با تونسبتی است بردرست بردر هرکه رفت بردر تست  
'alyy Mohammad Khán, 480 pp. of 15 lines.

44. آثار الوزرا. A History of celebrated Wazyrs by Mawláná 'abd al-Wahháb. The last Wazyr mentioned is Nitzám almulk Khwáfý (see No. 79 *infra*).

Beginning شرایف تحمیدات حضرت بادشاهی را که در ایجاد کانیات

E. 430 pp. of 15 lines.

45. چچ نامه. A Historical Romance, the hero of which is Dáhir b. Chach and his daughter, by 'alyy b. Hámid b. Aby Bakr.

Beginning حمد وستایش مرآن خدایر که ذکر کرام او خلاصه ایمان است

E. 202 pp. of 17 lines, copied in 1848.

46. نگارستان. A Well-known General History, by Akmad b. Mohammad.

Beginning ای طرازنده بهارستان وی نگارنده نگارستان

E. two copies, 200 pp. of 21 lines. I believe the book has been lithographed at Bombay.

47. نظام التواریخ. A General History more particularly of Persia, ending with the year 694, by the Qádhíy alqodhát Sa'yd.

Beginning حمد بی نهایت و شکر بی غایت مدعی را که

E. 202 pp. of 11 lines, new.

48. کتاب چهار گلزار شجاعی. Extracts from the Chahár Gulzár Shujá'y: "Dr. Sprenger says, this is an autograph of the author, but says, it contains some mistakes afterwards corrected; 1219 pp. lines vary from 16 to 21, average 18." This note, Sir Henry, refers to the MS. from which the one under notice has been copied. This history was compiled in 1167 by Har Charan Dás, but he continued it to 1201. It is a general history of India in which, however, the contemporaneous history is much fuller than the preceding parts. The extracts contain only modern history.

Beginning حمد گویم ان خدای پاک را صورت انسان نموده خاک را

E. 559 pp. of 15 lines, 8vo. not bound.

49. تاریخ کامل ابن اثیر. The Large Historical Work of Ibn Athyr

(d. 630) in Arabic. Two volumes. The first contains the ancient history, the life of Mohammad and comes down to A. H. 69. Beginning الحمد لله الكريم ولا اول لوجوده. The other volume is defective at the end, and contains the history from 372 to 417.

Beginning في هذا السنه ورد.

The first vol. belongs to Col. Rawlinson, small folio, about 800 pp. of 27 lines; the other vol. belongs to Ratan Singh, it is old, and written with great care having all the vowels, 490 pp. of 19 lines.

50. طبقات ناصري. The Nāçirian ages or history by Abú 'amr 'othmán b. Moḥammad al-Minháj Júzjány, dedicated to Nāçir aldyn Abú-l-Motzañfar Maḥmúd Sháh b. Sultán Iltatamsh التتمش. When the author was Qádhíy, he found a book which contained chronological tables, and it had been written under Nāçir aldyn Soboktagyn, from this he compiled this universal history from Adam to his own time. It is divided into twenty-five Tabaqats.

Beginning الحمد لله الاول الذي لا ابتداء لوجوده

Tirhuán Rájah (near Bandah) 894 pp. of 15 lines. An autograph, as appears from the postscript:

كتب المنهاج بن سراج في الخامس شهر ربيع الاول سنة خمسين ستمائة

51. طبقات ناصري. "This cannot be the Tabaqáte Nāçiry, for Maḥmúd Sháh of Guzerát is mentioned A. D. *circa*, 1500, and, may be the lacuna contained some later king; and this may be Bahádur-sháhý—or perhaps it is the Tabaqát Maḥmúd-sháhý by Naçyr Khán, which must be a general history as Firishtah quotes it I 506, in Gháziy Khán's reign and 446 in Bahmany's reign."

This is a fragment of an universal history beginning with the creation and ending with the death of 'alyy. It has no preface. From the imprecations which follow the names of Mo'áwiyyah and the members of his family, it would appear that the book was compiled by a Shy'áh. It was compiled under Maḥmúd Sháh b. Moḥammad Sháh b. Aḥmad Sháh b. Moḥammad Sháh b. Motzañfar Sháh, to his name Sir H. has added the following pencil note "this is the Begura who died in 917=1511.

Beginning مقاله اول در ذكر انبيا ورسل و پادشاهانی که پیش از اسلام بودند و آن مشتمل است بر دو فرقه فرقه اول در ذكر انبيا ورسل و فرقه دوم در ذكر پادشاهانی که پیش از اسلام بودند فرقه اول در ذكر انبيا ورسل و ما درین کتاب بعض از انبيا ورسل ذكر كدم اقتداء بقوله تعالى

E. 326 pp. of 17 lines, new.

52. تاریخ و صاف. The celebrated History of Waççáf (see Ouseley Persian poets, p. 230, Hammer Gesch. d. Schönen Redek. Pers. p. 243, and my Catalogue, I. p. 566.)

Beginning حمد و ستایش که انوار اخلاصش افاق و نفس را چون فاتحه صبح صادق متلالي سازد

Rájah of Terúa, a fine copy, in one volume, folio, 798 pp. of 19 lines. Sir H. has extracts from the last part which were copied at Lucnow from Chauky Prashád's copy.

53. تاریخ فیروزشاهی. History of Fyróz Sháh from his birth to his death by Sháms Siráj 'afyf, it is divided into five parts which were subdivided into ninety Moqaddamahs. The last five Moqaddamahs are wanting.

Beginning قال الله تعالى ولا يعلم تاويله الا الله والرا سخون في العلم الاية قال الذبي

E. new but carefully corrected, 343 pp. of 17 lines.

54. تاریخ فیروزشاهی. The History of Fyróz Sháh and his predecessors by Dhiyá aldyn Barany.

Beginning حمد و ثنا مرخدای را که اخبار و اثار انبیا

'alyy Mohámmad Khán, a fine copy, 528 pp. of 15 lines; another copy belonging to Nawáb Dhiyá aldyn Khán, 581 pp. of 21 lines.

Beginning الحمد لله رب - - چنين دعا گوي

"Balbún's life is placed last and from p. 219 this copy seems to be an extract."

55. توزك جهانگري. The life of Jahángyr from his birth to A. H. 1034, by Mohámmad Hádiy.

Beginning حمد و ثنای بی مروحده و سپاس و ستایش لا یخصی ولا تعد

E. folio, 783 pp. of 15 lines.

56. تاریخ مظفري. A History of the Tymúrides, compiled in H. 1212, by Mohámmad 'alyy Khán Ançary.

E. 1005 pp. of 15 lines.

57. ظفرنامه. History of Tymúr (the same which has been translated into French) by Mollá Sharaf aldyn 'alyy Yazdy.

Beginning افتتاح تاریخ جهانداري و ابتدای نامه ظفرو بختياري

E. two copies, 382 pp. of 11 bayts. Copies of this book are frequent, but very few are complete, the life of Chengyz Khán and his successors being almost universally omitted.

58. ملفوظات تیموري معروف بتوزك تیموري. Autobiography of Tymúr.

"Steward's translation ends at p. 261."

Beginning حمد بلیغ سبحانی را که بمقتضای کریمه انا جعلنا

E. 522 pp. of 15 lines, new.

59. تاریخ مبارک شاهي. *Mobárak-sháhian History*, by Yahyà b. Aḥmad b. 'abd Allah of Sirhind السیدیندی (*sic*). It begins with Sulṭán Mo'izz aldyn b. Moḥammad b. Sám Ghóry and comes down to *Mobáraksháh*—A. H. 838.

Beginning سپاس بی قیاس مر حضرت خالق نا الجبن والانس

E. 12mo. 263 pp. of 13 lines, new.

60. تاریخ عالی. *A History of the Patan kings of India*, by Amyr Khosraw “composed in 709; but see p. 26.”

Beginning

وله این نامه که نقد فتح دارد در جیب شد نام خزاین الفتوحش از غیب

E. 188 pp. of 15 lines.

61. تاریخ سبکتگین. The fifth volume of the *History of Sobak-tagyn*, by Abú-l-Fadhī Bayhaqy. It commences with 421 and ends with 432.

Beginning زندگانی خداوند عالم سلطان اعظم ولی انعم درازباد

E. 762 pp. of 17 lines, of same age.

62. تفریح بخش. “This seems to be the same as my *Afghán History* by Sheo Pershád.” The book was compiled by Sheo Pershad in 1770, A. D. and dedicated to Nawáb Faydh Allah Khán. It begins with the reign of Moḥammad Faryd who had the title of Shér Khán. The last rubric is احوال مرزا سعادتعلی خان خلف نواب شجاع الدوله.

Beginning فیض آفرینی را الوف ستایش و نیایش سزد و کارساز

Nawáb 'aly Mohámmad Khán, small folio, about 700 pp. of 17 lines.

63. تاریخ شیرشاهی موسوم بمخزن افغانی. The *History of Shér-sháh* by Ibráhym. It is based upon *Tabary*, the *Majma' alansáb*, the *Guzydah-jahán-Kusháy*, and more particularly on the *Ma'dam alakh-báre Aḥmady*. The latter book was composed in 1020 by Aḥmad Khán b. Bahly Khán Kanbú.

This work is divided into six chapters باب and three *dafters*, viz.: 1. Jacob who is considered the father of the Afgháns; 2. On *Talút* 3. Khálid b. Walyd; 4. Bahlól and the Lodians; 5. Shér-sháh and Islám-sháh; 6. Darwyses. At the end, it is said, that it (the copy or composition?) was completed in 1120.

Beginning الحمد والمنت ایزد متعال را که در قالب

E. two copies, one very splendid, 696 pp. of 11 lines



64. *تواریخ افغانه*. A History of the Afgháns. "This book was procured from, I think, Nizám Ali Khán, the old vizier. It is a worthless compilation, but founded on Afghán apparently, rather than Indian, sources. He quotes the *Tawárikh Jahángry* (p. 134), *Tawárikh Nizám* (p. 136); *Majmá alansáb Hossein, T. Khán Jahány* and *Shér Sháhy* (p. 129). The author's name does not appear, and it is not worth knowing."

Beginning *ذکر در بیان اولاد ابدال ولد ترین از ترین سه پسر*

E. 168 pp. of 11 lines, of some age.

65. *تاریخ افغانه*. History of the Afgháns, compiled in 1195, and containing also an account of the Rohillas at Rámpúr.

Beginning *بدانکه دانیان حق تاریخ در احوال ملوک و سلاطین که در مملکت فسخه هندوستان بنویت کوس دولت*

E. 72 pp. of 14 lines.

66. An account of the Afghán tribes, by Sayyid Maẓmúd.

Beginning *آنچه احوال اقوام چهار گانه افغان*

E. 84 pp. of 11 lines.

67. *منتخب التواریخ*. History from Bahlól to Shyr Khán by 'abbás. "From the second line of the second page it corresponds with the 2nd Book of Horn's Afgháns, the variants being marked in the margin."

Beginning *حمد آن قادر بیچون بیچگون و ثنای خرد آن رهنمای رهنمون*

E. 94 pp. of 19 lines, copied in 1239.

68. *ترجمه تاریخ یمینی*. A Persian translation of the History of 'otby, by Moẓammad Karámat 'aly of Dilly.

Beginning *پس از طراوت چمنستان سخن طرازی*

E. a new copy, 8vo. 79 pp. of 15 lines. The Arabic (original) text of this book has been edited by Dr. A. Sprenger.

69. *مآثر الامرا*. The second volume of the Biography of the Nobles of the Court of Dilly.

Beginning *حرف سیدن سیف خان کوکه برادر کلان زینخان کوکه است گویند والده اش همیشه دختر آوردی و پدر بمقتضای بشریت آزردہ شدی*

E. 838 pp. of 15 lines, copied from the MS. of the As. Soc. There is also a copy of this important work in the possession of Col. Anderson, and one in possession of Mr. Elliott of Patna.

70. *تذکره الامرا*. Biographies of Nobles at the Indian Court, compiled by Kywal Rám in 1184. "This is not an abridgment of the

Máthir alomará. It contains a little matter not to be found there.”  
The biographies are alphabetically arranged.

بعد حمد قادریکه یک بیک امرکن هجده هزار عالم را موجود  
فرمود و پس از نعت پیغمبر که

E. 1408 pp. of 15 lines.

71. تذكرة الامرا. An account of the petty sovereigns and nobles  
of India, compiled for Col. J. Skinner.

بعد تمهید تحمید مالک الملکی که انتظام سلسله کائنات بوجود  
با عدل وجود فرمان روایان

E. 590 pp. of 13 lines, new.

72. طبقات شاهجهانی. Biographies of men of learning, poets, &c.  
from Tymúr to Sháhjahán, by Moḥammad Çádiq. It is divided into  
ten *Tabaqát*. “I have gone through this work, entered under their  
proper heads, names and passages for future reference.”

بغاز سخن سپاس و ستایش خداوندی تبار

E. 320 pp. of 13 lines, new.

73. تاریخ چغتای. A History beginning with the emperor Bátor  
by Akmad Shafy' Tihérány.

جهان جهان ستایش و افرین پادشاهی را

E. 8vo. about 350 pp. of 13 lines.

74. عبرت نامه. A History of Tymúr and his successors in India  
to the time of the author (who died the last twenty years.)

گوناگون ستایش پادشاهی را سزاست که در طوفان هول افزای

E. 484 pp. of 25 lines.

75. تذكرة السلطين چغتای. A History of the Moghol Kings (chiefly  
of India) from Chengyz Khán to A. H. 1036, by Moḥammad Hádiy,  
who had the title of Kámwar Khán, (see No. 11).

چون صفحه کاغذ بیاراستم و خامه دوزبان برداشتم

E. 1040 pp. of 15 lines. “This very valuable copy is written in  
the author's own hand writing. It only extends to the accession  
of Sháhjahán.” It was written in the 5th year of Moḥammad Sháh.

76. خلاصه التواریخ. A History from Bátor to the author's life-  
time (A. Façly 1195) by the Mohárájah Kulyán Singh.

ارایش و پیرایش هر نسخه و کتاب بستایش و نیایش

E. 715 pp. new.

77. ذکر پادشاهان تیموری. An account of the Tymúrian sovereigns,  
with portraits, compiled under Humáyún by Sayyid Moghol 'ally  
Khán.

Beginning الحمد لله رب العالمين و الصلوة والسلام على رسوله  
محمد وآله واصحابه اجمعين اما بعد چنين گوید

'alyy Mohammad Khán, 168 pp. of 10 lines.

78. فتح نامه بابر. The Book of Victory, being a poem by *Hájy*  
Mohammad Ján *Qodsy*, on Bátor's victory over Ibráhyim Afghán  
Lódy, and on the death of the latter (on Qodsy, see my Cat. p. 536).

Beginning از صبح ازل بابر مهر چهر

Nawáb 'alyy Mohammad Khán, 25 pp. of 10 bayts.

79. طبقات بابري. A History of Bátor, by Zayn Khwáfý, who says  
that he wrote down in Persian what the emperor dictated in Turkey.  
It may be a translation of the *Wáqi'át*.

It begins without introduction نهضت فرمودن حضرت سليمانى نوبت پنجم  
بجانب هندوستان و گل نصرت و گامراني چيدن از جوانب آن بوستان

A friend of Sayyid Ján, at Cawnpore, Svo. 326 pp. of 15 lines, a  
very old copy. There is also a copy of A. H. 998 in Sir Henry's  
collection.

80. همایون نامه. History of Humáyún, compiled in 859.

Beginning wanting.

E. 134 pp. of 15 lines: the same volume contains some Gha-  
zals of Çáyib.

81. اکبر نامه. A History of the reign of Akbar, from his succes-  
sion to 1010, by Ilahdád Faydhy Sirhindy.

Beginning بنام حضرت دادار اکبر که کنه او ز فهم ماست برتر

E. 453 pp. of 15 lines, a new copy. Also a copy of the third  
volume, 100 pp. of 13 lines.

Beginning از آنجا که فطرت

82. تکمله اکبر نامه. Supplement to the Akbar-námah, by the  
Shaykh 'abd al-Çamad.

E. 122 pp. the same volume contains some poems of 'onçory,  
part of the preface to the third Dywán of Amyr Khosraw, and an  
extract from the Dywán of Badre Chach. Among the English papers  
there are translations, or dissertations of the last named two pieces.

83. سوانح اکبري. A History of Akbar beginning with his marriage,  
by Amyr Haydar Hosayny Bilgrámy.

E. 843 pp. of 15 lines.

84. Third age or division of the تحفه اکبرشاهي containing in  
three chapters باب, the history of Shér Khán Súr, of his son Isíám

Khán and of the relations and nobles of Shér Khán who claimed sovereignty. The book was compiled by 'abbás b. Shaykh 'aly and dedicated to Akbar. Beginning

جنس حمد واثنيه خالق بریه را سزد که سرسبزي رياض ممالک

'alyy Mohammad Khán 161. pp. of 14 lines.

85. *توزک جهانگیری*. Autobiography of Jahángyr, containing the history of twelve years of his reign ending with 1014. "This copy and the copy from which it was completed, both end with Jahángyr's reaching Akmadábád, I have no doubt this is the veritable Duwáz-dasálah."

از عنایات بیغیات الهی یکساعت نجومی از روز پنچشنبه

E. two copies, 122 pp. 13 lines.

86. *تاریخ سلیم شاهی*. Salym-sháh's History of Jahángyr, which is usually called the autobiography of Jahángyr. It begins with the year 1014, and is therefore a continuation of the preceding.

حمد بیغیت وشکر لانهایت مبدعی را که یک امرکن اجرام  
فلکی و اجسام عنصری را از مکن عدم بوجود آورد

E. 109 pp. of 16 lines, copied in 1239.

87. *توزک جهانگیری*. The apocryphal autobiography of Jahángyr, the author of which is Mohammad Hádiy. It ends with the year 1037.

حمد و ثنای بی مروحد و سپاس و ستایش لا تعد

E. small folio, 370 pp. of 23 lines.

88. *جهانگیر نامه*. A History of Jahángyr, from his birth to his death, by Kámkár Khán.

سپاس قدسی اساس مرداوری را

E. 382 pp. of 11 lines. There is a book belonging to 'alyy Mohammad Khán, which has the title of *روضه الجنان*, and on the fly-page of which Sir H. wrote, "Part of the Jahángyr-námah I believe." There is also a copy in possession of Mawlawy Sadyd aldyn Khán.

89. *اقبالنامه جهانگیری*. The second volume of a history of Akbar and Jahángyr, by Mohammad Sharyf Mo'timad Khán. It begins with the year 969.

شهنشاه مظهر قدرت اله مورد کرامت نامتناهی

E. two copies, 236 pp. of 25 lines, there is also a very neatly made table of contents of the first volume of this work, it was made in 1240.

90. عمل صالح. Biography of Sháhjahán, from his birth to his death, 1076, by Moḥammad Çálih, at the end are some biographies of celebrated contemporaries.

Beginning شگفته روی چمن بیان و خذده روی گلبن سخن از حمد و جریده کشای بهار پیرای گلشن گاف و نون و جریده کشای

Myán Moḥammad, 1120 pp. of 19 lines, another copy belongs to Nawáb 'ally Moḥammad Khán, 1278 pp. of 21 lines.

91. Biography of Sháhjahán and 'álamgyr, by Moḥammad Çádiq. It begins with the accession of Sháhjahán and comes down to the year 51 of the reign of 'álamgyr.

Beginning اجناس حمد و سپاس حضرت افریدگار پیرا که شهاب ثاقب

E. two copies, 410 pp. of 24 lines, one copy is of same age

92. شاهجهان نامه. Sháhjahán, an epic poem, by Qodsy (Kalym?).

Beginning بنام خدائی که داد از شهان جهان بادشاهی به شاه جهان

E. 231 pp. of 11 bayts; contains merely an abstract.

93. شاه جهان نامه مرزا امینا. A History of ten years of Sháhjahán's reign, in prose, by Munshiy Myrzá Moḥammad Amyná.

Beginning طراوت چمن الفاظ و تازگی گلشن معانی

E. 4to. 448 pp. of 21 lines, a bad copy, and a copy belonging to 'ally Moḥammad Khán.

94. شاهجهان نامه. Biography of Sháhjahán, by 'abd al-Hamyd of Láhór. It begins with the year 1037, and ends with the Jashan of 'álamgyr, at the end are a few biographies of celebrated contemporaries.

Beginning نگارش تاریخ روز نامه بهروری و بختیاری

E. 296 pp. of 17 lines. This is a mere abstract, the whole work has 718 pp. of 17 lines.

There is another History of Sháhjahán, 884 pp. of 11 lines, in the collection, in which there is the following pencil note, "This is precisely the same as the 2nd vol. of the Sháh-námah abstracted by Chuneé Lal, and the blank Shurgirf of this volume may be filled up from that abstract. The biographies of learned contemporaries are omitted at the end. How is it, this contains the whole reign? It can scarcely be Abdul Hameed's."

95. شاهجهان نامه. The History of Sháhjahán in prose, by Moḥammad Táhir who had the title of 'ináyat Khán. He was librarian of the emperor and a son of Motzaffar Khán, and compiled this

work in the 31st year of Sháhjahán, from the work of 'abd al-Hamyd, &c. It is stated at the end that it is usually called Molakhkhaç.

Beginning بنام پادشاهی پادشاهان سرفرازی ده صاحب کلا هان

Rájah of Benares, 4to. 360 pp. of 19 lines, written in 1821. It contains many pencil marks of Sir Henry. Another copy belongs to Faqyr Núr aldyn of Láhór.

96. شاه جهان نامه. History of Sháhjahán from the first year of his reign to 1057, by Moḥammad Wáarith.

Beginning بوسرنامه دیدر قلم آنچه کند بهر تین رقم

E. 532 pp. of 19 lines, the copy is of some age.

97. A History of Sháhjahán, which begins with the 22nd year of his reign.

Beginning غره جمادی الثانی سال هزار و پنجاه و هشت هجری فرخ فال

“Does not correspond with Waris.” At the end are biographies many of them very useful.

Jawáhir Mald, 550 pp. of 19 lines.

98. شاه جهان نامه. History of Sháhjahán, by Jalál aldyn Tabátábá

Beginning درین ایام سعادت انجام یعنی سراغاز سال پنجم از جلوس

E. 330 pp. of 21 lines, an old copy.

99. شاه جهان نامه. History of Sháhjahán and an account of his ancestors, by Bhagwant Dás. It ends with the year 1037.

Beginning بر ضمایر ارباب فطرت و خواطر اصحاب خبرت مخفی

و مستعجب نماید

'alyy Moḥammad Khán, 239 pp. of 9 lines.

100. چهار چمن. The praise of Sháhjahán, in elegant prose and verse, by Munshiy Chandar Bhán, whose takhalluç was Bráhman. The first Mauran treats on the delightful society and the conquests of the Emperor, &c. 2. Provinces of India; 3. on Poetry; 4. elegant prose.

Beginning الحمد لله رب-- چون ادای شکر نعمت حضرت مهدیت و اظهار علو مدارج و مناقب خاصان بارگاه الوهیت

E. 236 pp. of 13 lines.

101. چهار چمن. The third and fourth parts of the چهار چمن of Moḥammad Myr, whose takhalluç was Arshad, containing the Institutes of the emperor Sháhjahán.

Beginning اغاز چمن سوم بذروه عرض بهره اندوزان بساط

E. 192 pp. of 18 lines.

102. History of Sháhshujá' a son of Sháhjahán, by Mohámmad Ma'çúm b. Hasan b. Çálih.

Bg. تاریخ شاه شجاع حمدی که زبان ما قاصران رایان و سرش است نثار کبریای  
'alyy Mohámmad Khán, 84 pp. of 23 lines, copied in A. H. 1200.

103. Autobiography of Asad Bég Qazwyny, who was a friend of Abú-l-Fadh'l, and had the title of Pyshraw Khán and died in 1041.

Beginning بنام ایزد دانای الخ

E. 4to. 55 pp. of 21 lines, a good copy.

104. Zafarnameh 'alamgyr. A History of 'alamgyr, from his birth to the year 1076, by 'áqil Khán (Rázy? See my Catalogue I. p. 543).

Beginning ابوالمظفر محی الدین محمد اورنگزیب بهادر بادشاه غازی

E. three copies, 245 pp. of 11 lines.

105. Máthar 'alamgyr. A Chronicle of the reign of 'alamgyr, in which the events of his reign are recorded year by year, by Mosta'id Khán Sháfiy.

Beginning انتخاب صحایف ایجاد انس و جان

E. three copies, 620 pp. of 15 lines. One copy begins with A. H. 1078 and ends with 1118.

106. Fatahat 'alamgyr. Victories of 'alamgyr, or history of the reign of this sovereign, by Mohámmad Ma'çúm b. Çálih.

Beginning حمدی که زبان همچو قاصران را بان حرس است نثار  
جذاب که پای است که تلون حالات و تصیب واقعات

Nawáb Dhiyá aldyn Khán of Dilly, 83 pp. of 17 lines. There is a copy of a history of 'alamgyr, by a Shaykh whose takhalluç was Ráfát, and who is also the author of the *Jahan Nama*, like the above work it has the title of *Fatahat 'alamgyr* and begins *ایزد که فتوحات* *ایزد که فتوحات عالمگیری* and begins *ایزد که فتوحات* *جهانرست قدیر و ز قدرت او*. It belongs to 'alyy Mohámmad Khán, 608 pp. 18 lines.

107. History of Báhádur Sháh, by Ni'mat Khán, whose takhalluç was 'áliy. "This appears to be by Nimat Khán who did write a History of this period. See Preface to T. Shahádat, p. 10."

Beginning دست بچود بر آورد بخود کریم بارونعم دو جهان در نفس  
خلق ازل نا باید مصرفس افسر سلطان سخن حمد مالک الملکی است

E. 524 pp. of 14 lines, a new copy.

108. Adab 'alamgyr. Letters of Shaykh Abú-lfat'h Qábil Khán addressed to various persons. The following chronogram contains

the date (1015?) when they were collected گل از باغ جان شد چو تاریخ او بباغ ارم دل نه بندد کسی. At the end is the history of the commencement of 'álamgyr's reign.

Beginning خد اوند علیم حکیم خرد بخش سخن آفرین

Nawáb 'alyy Moḥammad Khán, small folio, 762 pp. of 24 lines, a good copy.

109. An account of the war between Bahádur Sháh and Moḥammad A'tzam Sháh, also the history of Jahándár Sháh, by Myrzá Mobárak Allah, whose takhalluḡ was Wádhiḡ (see my Cat. I. p. 583).

Beginning تمهید نگارش این سوانح وجامع و شریف ابن مرزا مبارک امید واضح تخلص مخاطب بارادت خان بن کفایت خان شکسته نویس مشهور است

Nawáb Dhiyá aldyñ Khán, 144 pp. of 17 lines, in the same volume as the وقایع حیدرآباد copied in 1192.

110. تاریخ بهادر شاهي. A History of Bahádur Sháh from his accession to the accession of Moḥammad Sháh, by Moḥammad Qásim, whose takhalluḡ was 'ibrat.

Beginning رسمی است قدیم و طریقی مستقیم که پرده از قلب روزگار

E. 170 pp. of 21 lines, copied in 1230. Two other copies, one of Sir Henry and one of 'alyy Moḥammad Khán (360 pp. of 17 lines) have the title of 'ibrat-námah, and are much fuller than this.

111. عجایب الافاق. A History from the accession of Farrokhsiyár to the accession of Moḥammad Sháh.

Beginning wanting.

E. 162 pp. of 18 lines.

112. شهادت فرخ سیر و جلوس محمد شاه. Death of Farrokhsiyár and accession of Moḥammad Sháh, by Myrzá Moḥammad-bakhsh, whose takhalluḡ was Áshúb.

Beginning الحمد لله رب العالمین والصلوة والسلام علی رسوله سیدنا و سندننا و حبیبنا مولانا

E. 607 pp. of 15 lines. "It does not appear whether another volume was ever completed. Nawáb Dhiyá aldyñ's copy of Wási, was written by this author, who has put marginal notes of objections which he has enlarged upon in this work. The India House MS. with this title No. 250—begins and ends like this, said there to be the work of Myrzá Moḥammad Bakhsh."



113. كتاب نادر الزماني. History of Moḥammad Sháh to the year 1141, at the end biographical accounts of saints, learned men, &c. are added.

Beginning بهترین بیان و خوشترین ذکر انسان حمد حمدیست

'alyy Moḥammad Khán, 640 pp. of 19 lines.

114. بیان واقع. History of Nádír Sháh, also the author's own memoirs, by *Hájy 'abd al-Kárym*.

Beginning الهی محفل آراکن بذکر خود زبانه

E. and Nawáb Dhiyá aldyn Khán, 120 pp. of 12 lines.

115. تاریخ احمد شاهي. History of Aḥmad Sháh and Týmúr Sháh, by Imám aldyn *Hosayny*.

Beginning حمد بی حد و ثناء عد سزاوار بادشاهی است که لمن الملک

الیدوم لله الواحد القهار شان جلال اوست

E. three or four copies, about 500 pp. of 12 lines.

116. ذکر سلطنت محمد عزیز الدولت المعظاب عالمگیر پادشاه. This is a history of 'álamgyr II. without preface, the above title is written at the end of the book in red ink.

Beginning از اینجا که زمانه نیرنگساز و فلک کچرفتار

Rája of Tírḥúa, 450 pp. of 13 lines, written in 1172, Sir Henry wrote to me that it is unique, and that he intended to have the whole translated. A copy of the original has been made for Sir H. and is among his materials.

117. شاهعالم نانه. History of the reign of Sháh 'álam, by Bhikary Dás. "The author is praised for his hand writing in the *Yádgár Bahádury* under the head of *Khotút*."

Beginning حمد بیحد خدا برسد که میزان ادراک صروت حقیقت

دانش نمی سنجد

E. 663 pp. of 11 lines.

118. زبدة التواریح. A History from Týmúr to the invasion of Nádír Sháh, by 'abd al-Kárym.

Beginning حمد بیحد و سپاس بیعد نثار بارگاه عظمت و جلال

E. 272 pp. of 23 lines.

119. واقعات اظفري. Memoir of Moḥammad Tzahyr aldyn Myrzá 'alyy-bakht, who was familiarly called Myrzá Gurgány, and had the takhalluḡ of Atzfary. He was descended from the royal house of Dilly, and was alive in 1215.

It commences with the decline of the reign of Sháh 'álam and

contains the memoirs and letters and contemporary history of the author.

Beginning بعد حمد حضرت پروردگار و نعت

Nawáb Mohammad 'alyy Khán Jhahhuree, about 300 pp. of 15 lines, at the end the Rékhtah Dywán of Atzfary is added. Another copy of the work is in my possession. "Translation is required from beginning to the end of the Memoirs, consisting of about two-thirds of the whole volume."

120. A History of the Administration of Lord Cornwallis, the wars with Sindhyá, &c. by 'alyy Ibráhyim Khán (on whom see my Catalogue I. p. 180).

Beginning الحمد لله على نعمائه وصلوات على نبيه و اوصائه اين وقايع

E. 82 pp. of 15 lines, another copy, 219 pp. of 9 lines.

121. شگرفنامه. Travels of I'tiçám aldyn to England. He left India in A. H. 1180.

Beginning ستايش و نيايش مالك ملكي را سزد كه در ولايت لانهايت  
جلالش پدك اندیشه انسان

E. small 8vo. 218 pp. of 12 lines, written in 1868 of the Sumbhat era.

122. Memoirs of Mohammad Faydh-bakhsh, who was six years in the service of Shujá' aldawlah, and after his death twenty-seven years in that of Jawáhir 'alyy Khán, and after his death in the service of Daráb 'alyy Khán, who died in 1234, as we learn from chronograms from the pen of the author, at the end of the volume.

Bg. بنام خدائی كه با تیره خاك بر امیخت اين جوهر جسم پاك

'alyy Akbar, 962 pp. of 15 lines.

123. تاريخ علي وردی خان. History of 'alyy Wirdy Khán.

Beginning اجداد معلي القاب از قوم اتراك بودند و جدش نسبت رضاه  
با عالمگیر داشت

"I believe this is mine, but forget. I do not remember where and from whom I procured it," 176 pp. of 10 lines.

124. نادر القصص. Memoirs of Gholám Mohammad Khán Sirhindy, composed in 1216.

Beginning من بعد حمد ایزد بی همتا و پس از نعت سید المرسلین

Dilawar-jang of Farrokhábád, an autograph, 238 pp. of 11 lines.

125. عمادة العادات. History of Oudh, by Gholám 'alyy Khán, dedicated to Sa'ádat 'alyy Khán.

نغمه فروشي منقار عندليبان بيد رخسار گلی است که رنگ  
وبوي گلهاي بهاري

E. 416 pp. of 15 lines.

126. اوصاف اصف. History of Aḥaf aldawlah and his predecessors, by Munshiy In'ám 'alyy.

Beginning ای انکه تو ساختی صنع و منصف در حکم توصف اصف

E. 215 pp. of 14 lines.

127. تواریخ شاه شجاع الملک. Memoirs of Shujá' almulk Sháh, from 1216 to 1241.

Beginning حمد بیقیاس و سپاس بیسجد و شکر بی انتہا

E. 174 pp. of 13 lines.

128. فتح عبریه. A History of Assam, by Shiháb aldyn Táysy, compiled under 'álamgyr, probably in 1073, and divided into two books مقاله.

Beginning جنود نامعدود و حمد ملازم حضرت مالک علی الاطلاق  
است که صف اریان معرکه شریعت

E. two copies, 327 pp of 11 lines, new.

129. تاریخ مبارکشاهی. A History of the Kings of Dilly to Moḥammad Sháh, by Yakyá b. Akmad.

Beginning سپاس بی قیاس مر حضرت خالق حق

E. 262 pp. of 13 lines, new.

130. دستور العمل تو در مل (P.)—The Routine of business, by Tódermal, the minister of Akbar.

It contains an account of the revenue, and in the second chapter the titles of the Amýrs of the court. At the end are the dates of the death of saints.

Beginning نسخه دستور العمل بر آورده تو در مل

Ratan Singh Bareilly, 12mo. 64 pp. of 11 lines, an old copy.

131. شرح آئین اکبری. A commentary on the Ayn Akbary, by Najaf 'alyy.

Beginning ایزدی نیایش سزای بارگاهش نتوان بیان آوردن

E. 460 pp. of 13 lines, copied in 1267 "from the author."

132. کتاب جمعدامی. An account of the revenue of India under Sháhjahán, compiled after 1058.

Beginning الحمد لله والمنة که بافضال و کرم جناب الهی

Nawáb 'alyy Moḥammad Khán, a splendid copy, 424 pp.

133. دستور العمل. This book begins without preface, and contains

an account of the revenue of India (probably under 'álamgyr), at the end are added regulations of the Government.

E. a very valuable copy.

134. دستور العمل. A short History of India, also an account of the Revenue and Administration of India down to Farrokhsiyár.

E. 392 pp. copied in 1848.

135. رساله مناصب. Directory and Court Guide, containing an account of the principal officers, salaries, &c. at the court of Dilly, as they were in former days, by Najaf 'ally.

Bg. پس از نیایش بارگاہ دہشور فرعون دہش و بی نیازوستائش ستودگان

E. two copies, about 100 pp. of 11 lines.

136. صوبجات ہندوستان. An account of the Çábahs of India. "This is nothing more than an extract from the Kholáçat altawárikh."

Beginning تنظیم مملکت سخن دلپذیر و تنذیق معنی بند بی نظیر  
باصابت رای دیبرخانہ روشن ضمیر

E. 255 pp. of 13 lines.

137. قوانین سلطنت. A treatise on Government, on the arrangement of the king's household, &c. also the praise of Akbar Sháh (succeeded in 1806), to whom the book is dedicated by Iláhy-bakhsh, whose takhalluç is Shawq.

Beginning جهان حمد و سپاس سزوار حضرت شاهنشاهی که نہ رواق  
افلاک طاقی از ایوان رفیع البیان عز و جلال اوست

'ally Mohammd Khán, 128 pp. of 13 lines, copied in 1238.

138. مجمع الفنون و مطلع العلوم و (P.) An Encyclopædia of the sciences cultivated by the Mohammdans in India, by Wájid 'ally, the editor of the Zobdat alakhbár newspaper.

Beginning حمدی کہ شان خداوندی را شاید از زبان مخلوق

Lithographed, Agra, 1846, 4to. 539 pp.

139. شاهد صادق. An Encyclopædia in five chapters باب. 1, on God, the prophet and religion; 2, Government; 3, intellect and science; 4, love; 5, the stars. The name of the author is Mohammd Çádiq Çáliç Ispahány, he was settled at Jawnpúr and wrote this work in or after 1054.

Beginning الحمد لله تعالى ومنه المبدی والیه المنتهی

E. 858 pp. of 19 lines, a fine copy.

140. سیر الملوک (P.) Ethics for kings, being a treatise on the administration of the government of a state by the Khwájah Nitzám

almulk, written at the request of Sultán Sa'yd Mohámmad, a son of Malik Sháh. It is divided into fifty chapters فصل and the subject is illustrated by anecdotes حكایت. He had a fair copy made of it in 485.

سپاس خدای را عزوجل که افریدگار زمین و آسمان است

E. a fine old copy, 163 pp. of 22 lines, written in a clear hand at Urmyah, in 564.

141. خاتمه جلد دوم از کتاب كنزالمحفوظ. Appendix to the second volume of the work, which has the title of *Kanz almaẓfútz*. This volume contains ethics and history, and was completed in 1188. The history is chiefly taken from the *Tabaqáte Akbary* of Nitzám aldyn Ahmad.

در بیان دستور العمل سلاطین و احوال ایشان و وزرا و امرا حکام

Mohammad Myán, 356 pp. of 19 lines.

142. *Mirabilia Mundi*, by 'abd al-Karym of Jhajhar, whose takhalluṣ is Moshtáq, and who compiled this book in 1845. It contains the sayings of ancient philosophers, an account of remarkable buildings, of the Çúbahs of India, &c.

مرات حمد و سپاس بیقیاس تسلیم بارگاه صمدیت

E. 224 pp. of 15 lines.

143. *مسافرنامه جلال الدین محمد*. The Travels of the Saint Jalá aldyn Mohámmad, who flourished under Fyrúz-sháh. The book seems to contain very little information.

مسافرنامه حضرت قطب الاقطاب شیخ

Nawáb 'aly Mohámmad Khán of Jhajhar, small Svo. about 80 pp. of 14 lines.

144. *عباس نامه*. History of Sháh 'abbás of Persia, from his birth by Tâhir Wahyd (see my Cat. p. 137).

نیایش خالقی را سزااست که زبان محمدت سگال را از کلمات

Nawáb Dhiyá aldyn Khán, 70 pp. of 12 lines, another copy which has the title of ریاض التواریخ belongs to Ratan Singh. It is much larger, having 570 pp. of 12 lines, and containing an account of the Çafawy kings generally.

145. *طهاسپ نامه*. Contemporary History, by Tahmásp. He first relates the history of Persia, then the accession of Ahmad Sháh Durrány to the throne of Qandahár, his wars with Mohámmad Sháh the Marhatta war, &c.

ثدا و حمد بپحد آن خدا را که پیدا کرد او ارض و سما را Beginning

E. 316 pp. of 18 lines.

146. درة نادره. Modern History of Persia, by Munshiy Myrzá Mahdiy b. Naçyr. It comes down to the accession to the throne at Tabryz of Ibráhyh Khan.

Beginning دیباچه کتاب کتاب فصاحت قرین مخطط ومدیح

Nawáb Dhiyá aldyn Khán, 360 pp. of 15 lines.

147. تواریخ قندهار. The History of Qandahár Moħammad Qandahary. It begins with Kayúmarth and comes down to 1020, by Hájy. Among the sources which he names are تواریخ اصفهان و تواریخ یونانی و تواریخ بادشاه نامه الخ. At the end some idiomatic phrases of the Persian language are explained.

Beginning اما بعد از حمد و نعت واضح که کتابی مبنی احوال شاهان روم

'alyy Moħammad Khán, 200 pp. of 23 lines, written in 1213.

148. تاریخ پنجاب. A History of the Panjáb, by Ganésh Dás, Qánungúy of Guzrát, compiled about 1849 or 1850.

Beginning حمد خداوندی راست که ادم اکرم را از کتم عدم بعرضه ظهور آورد

E. 177 pp. of 13 lines, copied in 1851.

149. کتاب راج درشنی مشهور بتاریخ جمون. History of Jammú, by Gunésh Dás.

Beginning بعد حمد بادشاهی که تواریخ اورا

E. 630 pp. of 11 lines.

150. تاریخ پنجاب. A History of the Panjáb, coming down to our days.

Beginning برهوشمدان خیبر و اگاه دلان روشن ضمیر

E. 147 pp. of 9 lines.

151. تاریخ پنجاب. History of the Panjáb, by Gholám Moħyy aldyn. The date, when it was compiled, is stated in a ta'myyat which would give 1269, but there must be a mistake in the calculation; the work is not quite so modern.

Beginning حمد بپحد و ثنای منتهای مرخدا ایرا سزاست که کریمه رحمتی

E. 1258 pp. of 22 lines, folio.

152. کتاب شش فتح کانگرا. The six victories of Kangra.

Beginning حضرت حکیم علی الاطلاق جل جلاله در ازل ازال

E. 96 pp. of 17 lines.

153. کتاب راج تورنگی. A Persian translation from the Sanskrit of the Raj Tarangini.

حمد ان مبدعى كه عالم جود بست گردش چنانكه بود  
 كشود الحمد لله رب العالمين والعاقبة للمتقين

E. 114 pp. of 15 lines, a new copy.

154. *واقعات كشمير*. A History of Kashmyr, by Mohammd A'tzam from the earliest period. The book is rich in biography.

Beginning *زینت صفحات دفتر ابداع و ایجاد تربت طبقا منظر عالم کون و فساد*

E. two copies, 616 pp. of 15 lines.

155. *تاریخ كشمير بزبان اردو*. Hindústány translation of the Mohammd A'tzam's History of Kashmyr, by Munshiy Ashraf 'alyy.

Beginning *چونكه درینولا صوبه كشمير جنت نظیر عنایت قادر قدیر سے*

Lithographed, Dilly, 1846, 357 pp. of 85 bayts.

156. *لب التواریخ*. A History and description of Kashmyr. The last date which I observed is 1262. It is divided into two parts. *جلد*

Beginning *بعد از حمد و سپاس بیقیاس مر افریدگار جن و ناس كه خالق جمیع حیوانات*

E. two copies, 240 pp. of 13 lines.

157. *كشمير حال*. Present condition of Kashmyr, by Ganéshy Lál, compiled at the request of the Hon'ble Mr. C. Hardinge. It contains also Mr. Hardinge's journey to Kashmyr.

Beginning *برسیاحان مهالك فهم و دانش و مساحان مسالك خرد و بینش*

E. 145 pp. of 15 lines.

158. *تاریخ سند*. History of Sind, more particularly of Tatal, compiled a few years ago. It contains also biographical accounts.

Beginning *بعد حمد احد بیچون تعالی جلسانه عما یصفون كه*

E. 485 pp. of 14 lines.

159. *حدیقه العالم*. A History of the Deccan, compiled by Abú-l-Qásim in 1214.

Beginning *نظام ملك سخنوري و انتظام قلمرو معني كستري وقف سالار حمد شاهنشاهی كه*

Lithographed, Madras, 1266, 394 pp. of 94 lines.

160. History of Haydar 'alyy Khán of Maysor. We learn from a note in the commencement that the book was composed by Nawáb 'alyy Ibráhyim Khán (on whom see *suprà* No. 121). It comes down to 1195=1778.

Bg. *ستایش ناصری كه بمدد گاری فوج لطفش كشور كشیانرا فتح و نصرت*

E. 80 pp. of 13 lines.

161. کتآب تاریخ خانمان راجهای دهار و دیواس و مهارج سیندهیه بهادر. A History of the royal family of Sindhiyah, written in Hindústany, by Dharm Naráyan of Dilly, who was in 1846 a pupil of the Govt. College of that city.

Bg. پیش از شروع کرنے تاریخ خاندان راجهای دهار کے ایسا مناسب ہی  
Lithographed, Indore, 1850, 40 pp. of 17 lines.

162. لب التواریخ. "It contains an account of the Barha Wazyrs."

ساقی ای لعبت سیه صاف

E. 110. pp. of 15 lines.

163. وقایع حیدرآباد. History of Haydarábád, containing the conquests of the Moghol sovereigns in the Deccan.

بیان مجمع از وقایع زمان سلطنت پادشاه گیتی ستان  
خلد مکان ابوالمظفر محی الدین محمد اورنگ زیب عالم گیر

Nawáb Dhiyá aldyn Khán, 74 pp. of 17 lines.

164. حالات راجه های بهرت پور. History of Bhartpúr, from Ranjyt Singh to Balwant Singh.

از اینجا که بمیا من

E. 36 pp. of 15 lines.

165. مخزن الفتح. Treasury of Victories, or contemporary history, more particularly of the Mahrattas, by the pandit Bhagwán Dás of Sheópúr. The title is a chronogram for 1222.

ثدای صناعی که سنایش شمع وجود را

Nawáb 'ally Mokhammad Jhajhary, small 8vo. 162 pp. of 11 lines ; also E. 170 pp. of 9 lines.

166. تحفه تازه or بلوندنامه. History of the Rájahs of Benares, to Udat Naráyan Singh, by Khayr aldyn Mohammad of Iláhábád.

سپاس خداوندی که در ایوان ذاتش

E. two copies, 510 pp. of 13 lines.

167. عبرت نامه بنارس. The History of Wazyr 'ally Khán, by Mohammad Hosayn Bhabhány, compiled in 1213 and divided into five chapters مرحله.

الحمد لله رب العالمین والصلوة والسلام علی سیدنا ونبینا

'ally Mohammad Khán of Jhajhar, about 150 pp. of 11 lines.

168. جونپور نامه. The Jawnpúr-námah, a historical account of Jawnpúr and its buildings, &c., by Khayr aldyn.

باب اول در احوال سلاطین و حکام جونپور

E. 87 pp. of 13 lines, written in 1843.



169. وقایع قله اتاوه. A History of Etawah, by Munshiy Lachmy Naráyan who was born in 1158.

Beginning ای خوشا دلچسپ مضمون که از تسویدان

E. 35 pp. of 13 lines.

170. وقایع دلپذیر. History of Oudh, from Gháziy aldyn Haydar to Moḥammad 'ally Sháh, by Mawlawy 'abd al-Aḥad.

Beginning ابداری سیوف بارقه السنه کشور کشایان

E. 126 pp. of 15 lines, copied in 1266.

171. تاریخ گجرات. History of Guzrát, from 793 to 863.

Beginning برواقف هوشمند ودانای خردمند بس واضح روشن

E. 285 pp. of 15 lines.

172. تاریخ گجرات. History of Guzrát, by Abú Toráb Darwysh. It commences with the reign of Sultán Bahádur and ends with Sultán Motzaffar, the last of the Gujráty kings.

Beginning الحمد لله والصلوة على رسول الله اما بعد چون صفت

دوستی خصلتی است

E. small Svo. 230 pp. of 12 lines, copied in 1151.

173. كتاب گل رحمت. Memoirs of Hafis Ruhmut Khán, surnamed Hafis-ool Moolk, by his grandson Sadut (Sa'ádat) Yar Khán of Bareilly.

Beginning ستایشیکه شایان شان الوهیت است

Lithographed 1836 Agra, 221 pp. of 17 lines.

174. تواریخ احمد خانی. A poem by Nawal Ráy of Shamsábád in which he describes the career of his patron Aḥmad Khán, composed in 1180.

Beginning خداوندی که آرایش جهان کرد

Nawáb Ráy of Farrokhábad, about 500 pp. of 17 bayts, incomplete.

175. مآثر الکرام. Biographies of distinguished Musalmans in India, divided into two chapters, the first contains saints and Qúfies, and the second men of learning, by Gholám 'ally Azád.

Beginning نسایم المحامد ساریته الى الحمی السرمدي

E. 392 pp. of 13 lines.

176. An account of celebrated calligraphers and engravers of Dilly, by Shaykh Gholám Moḥammad. The last date which I observed is 1228.

Beginning رساله متضمن حالات خوشنویسان خطوط الخ

E. 76 pp. of 11 lines.

177. شجرة صوفيان. Spiritual Genealogy of the Çufies, from Adam to the year 1137, when the book was compiled by 'abd al-Karym Hamadány.

E. 73 pp. written in a clear hand.

178. فوايد الفواد. The sayings of Hasan 'aly Sinjary, a saint, taken down by one of his disciples. It commences with A. H. 707 and ends with 722.

Beginning اين جواهر غيبی و این زواهر لاریبی از خزاین تلقین

E. 306 pp. another copy is in possession of Nawáb Dhiyá aldyn Khán.

179. مرأت مداریه. The History of Shaykh Madár, an Indian saint of great repute, who died in 849 and is buried at Makanpúr (not far from Kannauj), compiled by 'abd al-Rahmán Christy in 1064. Chiefly from the work of Qadhiy Moḥammad Kantúry.

Beginning الحمد لله الذي خلق الاشيا وهو عينها يعنى

E. who received it from Mr. E. Bayley, about 100 pp. of 15 lines, a good copy.

180. نصره الناظرين. A History of the Saints of Bilgrám, in the form of a chronicle, the remarkable events connected with them being related year by year up to A. H. 1182.

Beginning الحمد لله محول الشهر والاعوام ومقلب الليالي والايام

Náçir Allah, Deputy Collector of Coel, 406 pp. of 17 lines.

181. كتاب گيان گشت ايت. A Memoir on the Kayeth Caste, by Samán Lal in Hindústány, dedicated to Sir H. Elliot.

Beginning سچده کرتا ہوں میں اُسکو جسکے یہہ دنیا چون

E. 132 pp. of 11 lines.

182. راج سماج. A Hindy treatise written in the Persian character with an Urdú interlinear version on the habits of the Hindus by Sry Rám Singh pandit, dedicated to Sir H. Elliot.

Beginning در بیان کبریت یعنی توحید سری کبنا جہو کے میں

E. 178 pp. of 17 lines, copied in 1851.

183. انیس الحجاج تصنیف صفي بن ولي. "This work is a Pilgrim's Guide to Mekkah," by Safi b. Wali of Qazwyn. The author went on the pilgrimage in 1086. In the Introduction, he describes his voyage from Súrat to Jedda, and in the first chapter the preparations requisite for the sea voyage. 2nd. Sacred places at Mekkah. 3rd. Ditto at Madynah. Conclusion, adventures of the author after

disembarkation and the honours due to pilgrims. The author compiled the book after return to Súrat. Many parts are amusing. The original is in the Lucnow Tópkhánah library, and is embellished with drawings of the temple of Mekkah and Madynah and Carawans, &c."

Beginning الحمد لله والسلام على عباده الدين اصطفى

E. 256 pp. of 9 lines.

184. شگرفنامه. Account of a voyage to England, and information on various subjects, as the criminal law of the Mahomedans, the compass, &c. by I'tiçám aldyn, written in 1191.

Beginning

E. 380 pp. of 11 lines, written in 1867 of the Sumbhat era.

185. تذكرة دولت شاهي. The Tadzkirah of Dawlat-sháh, see my Cat. I. p. 7.

Beginning تحميدديكة شاه باز بلند پرواز اندیشه نساخت

E. 584 pp. of 15 lines, a good copy.

186. پدموات. The Loves of Padmáwat, a princess of Ceylon, and Ratan Sén a king of Chitór in Bhaká verses, by Malik Mohammad Jáysy (see my Cat. I. p. 614).

Beginning سنورون اوابك كرتارو حبه حيود بهه كهه سسارو

Nawáb Dhiyá aldyn, 328 pp. of 18 lines, a fine old copy.

187. پدناموت موسوم برت پدم. Padmáwat, a Mathnawy, containing the adventures of Rat Padam, by Bazmy, who took the subject from the Hindée of Jáysy and composed this poem in 1028.

Beginning اي نام تو نقشه لوح جانها

E. about 300 pp. of 11 bayts, a good copy.

188. شرفنامه محمد شاه بادشاه. A poem in praise of Mohammad Sháh, by Myr Mohammad, whose takhalluç was Ridhá.

Beginning جهان افرينده خدای تراست

E. 252 pp. of 15 lines, copy of same age.

189. نه سپهر. The seven spheres, a Mathnawy, in 4,506 verses, by Amyr Khosraw, composed in 918.

Beginning خدا را كنم برسرنامه ياد كه برينده درهای معني كشاد

Nawáb Dhiyá aldyn Khán, 342 pp. of 13 lines.

190. مثنوي مير عبد الجليل. A poem of Myr 'abd al-Jalyd Wásity Belgrámy, who was an ancestor of Azád and died at Dilly in 1137. He celebrates in this poem the marriage of Farrokhsiyar with a daughter of Máhárájah Ajét Singh, which took place in 1128. The date of the composition is 1131.

بھاری کرد کل عالم چمن شد Beginning

Nawáb Dhiyá aldyn Khán of Dilly, 90 pp. of 15 bayts. In the same volume is another Mathnawý of the same poet which begins بیا ای خامه ماتم روایت and some poems of Dzawqy, who was also of Belgrám, and a contemporary of 'abd al-Jalyd.

191. جامع الحكایات ولوامع الروایات. Collection of Stories and Anecdotes, by Mohámmad 'awfy, compiled in 625 and dedicated to the Sultán Shams aldyn.

It is divided into three parts قسم and each part is subdivided into twenty-five chapters باب. The first treats on the knowledge of God, the second on good morals, and the third on bad moral conduct, and the fourth on cosmography.

ثنا و حمد مبدعی را كه از بدایع Beginning

Heirs of Máhárájah Ratan Chand, Bareilly, folio, old and splendid, near a thousand pages of 29 lines, close writing. It contains the fourth part, but "there seems no third kism in this." There is also a copy in the As. Soc. The work is important for history.

192. نوادر الحكایات. Remarkable stories, collected in 1041 by 'abd al-Nabby. They are divided into five books صحیفه and every book is subdivided into 12 chapters باب and the chapters are again divided into مجلس.

ابتدای کتاب نوادر الحكایات بنام Beginning

Sir H. Elliot, about 800 pp. of 22 lines, a good copy, containing, it would appear, only one book.

193. اعجاز خسروے. Inimitable prose of Amyr Khosraw. Bg. هذا لكتاب بفضلہ اللہ ذی الکریم اشاءت سحر الصد الجن والنسم.

Nawáb Dhiyá Aldyn Khán, 382 pp. of 19 lines, large folio.

194. رقعات شیخ فیضی فیاضی. Letters of Faydhy, divided into five chapters لطیفه: the first contains letters to the Court; 2nd, to Nobles, men of learning and Çúfiés; 3rd, to Philosophers and Physicians; 4th, to (foreign) Kings and Princes; 5th, to relatives. It also contains an appendix which is divided into three منظومه.

یا از لی الظهور یا ابدی الخفا نورك فوق النظر حسنك فوق الثنا Bg.

Dhiyá Aldyn Khán, an old copy 318 pp. of 13 lines.

195. مجموعه نثر مالا طغرا. A collection of twenty-two essays in flowery prose, by Mollá Toghrá (see my Cat. I. pp. 98, 112, 125.)

Bg. در نورد محبت همه جا حاصل خاک است صد مهرة داغ هر طرف تیزتک است

Nawáb Dhiyá Aldyn Khán, 194 pp. of 15 lines, a fine old copy.

196. نوباد. Elegant prose compositions by Mollá Monyr of Láhór, (d. on Saturday 7th Rajab 1054) composed in 1051 of the Wilaity era.

Beginning این منتخب از بخت فرجامش

Dhiyá Aldyn Khán, about 300 pp. of 9 lines, copied in 1163.

197. احوال فرنگستان. Abd al-Sattár b. Qásim, the author of this book was ordered by Akbar to learn the language of the Firinghees in order to be enabled to translate books into Persian regarding their religion and history, &c. He therefore studied under a missionary whose name is spelled ژيرو نمروشوير. The last two syllables most likely present "Monsieur." After a study of six months he wrote this work, which contains an outline of the histories of Greece and Rome, and of the lives of the ancient Philosophers.

Beginning سپاس الهي و ستايش جان آفرين در آغاز نامها

E. 120 pp. of 23 lines, copied in the 19th year of Akbar.

198. طبقات عالمگيري. Critical remarks by Balygh on Mirzá Bydil, Çáyib, and other poets.

Bg. حمد عليبيکه در لفظ کن معاني تصانيف طبقات مضمهر داشتن شان

Dilly College, 42 pp. of 23 lines.

199. نگارستان عجایب. The story of Bahrám Sháh, King of China, by Sa'y'd aldyn, who was commonly called 'allyy Mohámmad Khatáhy.

Beginning ثنا کرتا ہوں میں ایسے خدا کے کہ حسن عقل انسانکو عطا  
کي اور عالم ایجاد میں عجائب غرائب شکل مختلفه

E. 124 pp. of 11 lines.

200. نیاز نامه. Letters and descriptions of Subhán Ráy, divided into three chapters قسم containing petitions or letters to superiors, or equals, and forms of deeds, &c.

Beginning حمد بلسد بحضورت منشاء معني که منشي فطرت را در  
انشاء ستايش سر بگريبان حيرت است

E. 306 pp. of 14 lines.

201. بهار سخن. A collection of letters and other elegant compositions by Mohámmad Çálih Açlah Allah of Dilly, an Amyr of 'álamgyr. It is divided into several chapters چمن.

Beginning ايزد سخن افرين را سپاس که چراغ گفتار

Nawáb 'allyy Mohámmad Khán, 444 pp. of 20 lines.

202. رياضته الانشا. "Garden of elegant composition, being a collec-

tion of the letters of Mahmúd Gawán گاون of the Deccan, a son of Shaykh Mohammad Gylány.

Beginning یامن توحد ببدایع الابداع والانشاء

“He was Wazyr of the Rahmanyah dynasty of the Deccan, particularly of Humáyún Sháh and his son Nitzám, and of Mohammad Sháh, and died in 885, see *Firishtah* I. p. 689.”

Nawáb Dhiyá aldyn Khán, 367 pp. of 15 lines.

203. بدایع الانشا. Letter forms composed by Yúsufy for the use of his son Hosayn. The collection is therefore also called *Insháy Yúsufy*.

Beginning زینت عنوان هرنامه نامی و زیور دیباچه هر صحیفه

E. 374 pp. of 13 lines, copied in 1011.

204. گلدسته فیض. Letters and other elegant prose compositions of Bhóran Mal Tamkyn, who resided at Agra in 1807, collected by his grandson Purán Chand.

Bg. غنچه زبان باهتزاز نسیم شکر قادری شگفته و خندان است

E. 100 pp. of 12 lines.

205. گلشن بهار. Collection of letters of Munshiy Jaswant Ráy Bahádúr.

Bg. نوع بنوع سپاس و گوناگون قدسی اساس قادر مقتدر ذوالجلال

E. 122 pp. of 16 lines.

206. صفات کائنات. Descriptions in prose of various subjects, selected from the most elegant Persian authors, as Amyr Khosraw, Mirzá Khalyl, Mirzá Jalál Tabátabá, Khán Arzú, Shaykh Mohammad Čálih, Mokhliç Khán, &c. Without preface.

Bg. بسمه رنگین کلامی تعریف بسم الهی است که حسن آغاز انوار آغاز  
حسن اماني جمهر

E. 620 pp. of 19 lines.

207. كتاب مجمع الصنایع. A work on Rhetoric, by Nitzám aldyn Ahmad.

Bg. الحمد لله الذي انعم علينا وهدانا الى الاسلام

E. 178 pp. of 15 lines.

208. ریاض الصنایع. “(Printed) Abridgement of Persian Rhetoric with examples compiled by Mahárájá Káli Krishná Bahádúr,” Calcutta 1847, 80 pp.

Beginning حمد لا تحمد و سپاس لاتعد پروردگاری را سزد

209. مرآت الاصطلاح. Poetical expressions of the Persian language

explained by Ráy Anand Rám, whose Takhulluç was Mokhliç. "He was a Khatry of Dilly, and in the service of Sayf aldawlah of Láhór. He left a Persian and Hindy Dywán and is also author of the History of Nádír Sháh's war with Mohámmad Sháh. He died in 1163." (1164?)

Beginning *ربنا در مقامی که کرو بیان ملاء اعلی*

E. 531 pp. of 15 lines, a fine copy written in 1267.

210. *فرهنگ ابراهیم شاهی*. A Persian Dictionary by a pupil of Ibráhyim Qiwám Farúqy; (perhaps by himself, and only the preface by the pupil.) The pages being injured, the text is not complete.

Beginning *بنام خداوند هستی بدو است*

Sir H. Elliot, 800 pp. of 21 lines, an old copy.

211. *مفتاح الاخلاق*. A Glossary and Commentary on the Akhláqe Náçiry, by 'abd al-Raḥmán b. 'abd al-Karym of Burhápúr, compiled in 1085. He says that he found an autograph of the Ethics of Náçiraldyn Túsy which he had used in his lectures, and after a careful study he wrote this work upon it, which is divided into two parts *قسم*, the first contains a Glossary, and the second an explanation of verses of the Qorân, traditions, &c. which occur in it. Among the books which he professes to have used are the following *كنز اللغات بحر اللغات اصطلاحات الحكماء جامع اللغات لطايف اللغات*.

E. 93 pp. of 9 lines, a new copy.

212. *دربای لطافت*. A treatise on Hindústány Grammar, by Inshá.

Beginning *ثنای بی اندازه داور بر او سزاست*

E. 320 pp. of 16 lines, incomplete. This book has lately been printed at Murshidábád.

213. *مصطلحات تهگی*. A Vocabulary of the Slang of the Thugs, by Munshiy Mirzá Mohámmad 'alyy Akbar of Iláhábád.

Beginning *حمد و سپاس زیاده اندازه شرح و بیان دیجان*

Lithographed, Calcutta 1839. Small 8vo. 197 pp.

214. Rules of Grammar and Vocabulary of the Chaghatay language, compiled by Mohammad Mahdliyy Tabryzy in 1198.

Beginning *حمد و سپاس بیحد و قیاس متکلمرا*

E. 391 pp. of 9 lines, new.

In the same volume is another work on the same subject by an anonymous author, 261 pp.

Beginning *الحمد لله رب العالمین - - بدان اسعدی الله تعالی که کلمات لغات زبان تورکی مانند عربی برسه قسم است*

In the same volume is a vocabulary of the Turkomán dialect, by Ahl aldyn Turkomán, a son of Bayram 'alyy 173 حمد و سپاس  
وستایش مران معبود را که از

The original of these vocabularies is in the Mótý Mahall.

215. قرّة الملك. A treatise on the veterinary art, translated from the Hindy (Sanskrit?) by order of Ghiyáth aldyn Mohámmad Sháh b. Mahmúd Sháh Khiljy in 783 (?). It is divided into 12 chapters باب  
and treats on the diseases of horses, &c. and their remedies.

Beginning الحمد لله رب العالمين والعاقبت للمتقين - سلان

216. جواهرنامه. A description of precious stones and some other minerals, by Mohámmad b. Ashraf Hosayny Rostandáry dedicated to Bábor.

Beginning حمد بلیحد و شکر بیعد حکیمی را سزد که بموجب خمیری طذت  
آدم بید اربعن صباحا

Ratan Singh, 122 pp. of 15 lines.

217. بدایع الأسرار. A medical treatise on tea, coffee and tobacco, by Ahmádh Hosayny.

Beginning سپاس و ستایش و ثنا و ثنایش مر حکیمی را

E. 64 pp. of 9 lines, new.

218. معالجات شافیة. An essay in Urdú against the infanticide of the Rájputs, by Tafadhhdhul Hosayn Khán of Jawnpúr.

Beginning اشتهار منطبعة گورمند گزیت اگره مرتبه تواریخ متعدده

E. two volumes 236 and 95 pp. of 7 lines.

219. قانون مسعودی. The Mas'údíans Canon, by Abú-l-Ryhán Moh. b. Ahmádh Byrúny, dedicated to Sultán Abú Sa'yd Mas'úd b. Gamyn aldawlah Mahmúd. This is probably the most accurate and one of the largest Arabic works on astronomy. It is divided into 11 books مقالة

Beginning المسعود من سعد با اله و تفرد بتاییده

E. A beautiful old copy, folio 516 pp. of 31 lines.

220. (P.) اوله قویه بر عدم جواز کبیسه. The strongest evidence of the non-existence of the Kabeesa in the doctrines of Zoroaster, in reply to a work of Hajy Mohd. Hosain Ispahány, published in A. D. 1827 and entitled شواهد الذفیسه فی اثبات الكبیسه by Feroz b. Mollá.

Beginning سپاس نامحدود و غایت و نیایش

Bombay 1828, large 8vo. 223 pp.

221. تصویرات طیور. Very valuable drawings, with names, in Persian, of birds used in hawking &c.



تصویر بہہ باز فانی کہلاتا تا ہی خالی نام ہریشکے تشریح بہہ ہی

E. 92 pp.

222. توصیف زراعت. The manner in which agriculture is practised in India, described in Hindústány by Kalb Hosayn Khán.

سزاوار حمد و سپاس وہ خالق یکتا ہی

Lithographed, Agra, 1265, 270 pp. of 14 lines.

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*Notes upon the Geology of the Rajmahal Hills ; being the result of Examinations made during the cold season of 1852-53.—By THOMAS OLDHAM, Esq. F. R. S. (Communicated by the Beng. Govt.)*

The researches of the Geological Survey were directed during the working season of 1852-53, to the examination of the Rajmahal Hills, and portions of the adjoining districts.

The "Rajmahal Hills" form a comparatively isolated group of low, flat-topped hills which extend from the borders of the district of Beerbhoom, on the South, to the banks of the Ganges on the North. The general direction of the range is North and South.

Near their southern extremity the hills are divided by the valley of the Brahmini Nuddi ; which flows from West to East through the range, and forms the southern boundary of the Damin-i-koh or Government Territory. North of this, the Puchwara pass, or the valley of the Banslooi Nuddi, passes right across the general direction of the range ; and completely divides the hills. Still further North, the high ground is intersected by the Chuperbhita pass, which has a general North-Eastern direction, and further north by the Mujhwa, or Moorcha pass, which runs South of East ; these two passes unite with the great valley of Burhait and Burio, which stretching North and South for more than 15 miles, is connected with the plains of the Ganges on the East, by the low ground around Ghutean and Mohobutpoor through which the Goomani Nuddi passes.

This nearly isolated group of hills no where attains any great elevation ; the highest tops scarcely exceeding 2000 feet, but present

throughout very picturesque and varied scenery. A large area of their surface is still clothed with forest jungle, but a considerable portion has been brought into good cultivation by the Sontal settlers, as well as by the aboriginal hill-men.\*

Of the mineral structure of these Hills, the earliest notice was that of Dr. Buchanan,† subsequently some detached papers in the current periodicals, and the report of the Coal and Iron Committee were the chief sources of information regarding their geological composition. Recently (1851) Capt. Sherwill has published *Notes of a tour in these hills*‡, in which he gives a good general sketch of the tribes inhabiting the hills, and some passing allusions to their geological formation. Of a small portion of the southern end of the range, Dr. McClelland gave a Map and description in his report for 1848-49.

The statements of these authors, the occurrence of a number of detached localities in which Coal had been stated to occur, especially along the western flank of the hill range, the possibility of these coal-beds proving only a continuation of the valuable beds of the Damoodah valley, the importance of determining, even though unfavourably, the true value of such deposits, and the fact that Sukrigully (at the North-Eastern corner of the Hills) had been indicated as a locality likely to prove favourably situated for the manufacture of iron, all rendered a careful examination of the district desirable. An abstract of the results of this examination is now given.

The Revenue Survey Map of the district, (a tracing of which we procured through the kindness of Captain Thuillier, Deputy Surveyor General) not being lithographed, it became necessary to construct working copies from the tracing, and again to transfer the geological information. Further, these Maps being prepared and published by separate Pergunnahs, while geological districts are totally irrespective of such fiscal boundaries, considerable delay unavoidably oc-

\* It appears to me quite erroneous to view this range of the Rajmahal hills as in any way a part of the great Vindhyan range, the true termination of which to the N. East is in the Curruckpore hills, near to Monghyr. They are entirely distinct in topographical position, in general direction, and in geological structure.

† *Gleanings in Science*, vols. 2 and 3.

‡ *Journal of Asiat. Soc. Bengal*, No. VII. 1851.

curs in the compilation and preparation of Maps, on which to record the geological observations. Further, these Maps, being prepared for special purposes, and seeking only to determine with accuracy boundaries and contents (which they do most satisfactorily), are, as regards the physical features of the country, quite insufficient in detail for any careful geological examination. Of the interesting district of the Damin-i-koh, all the topographical features were sketched anew, and quite independently, as we proceeded.

The examination of the many fossils procured, is still progressing, and the final result of their comparison will be given hereafter, with more detailed geological descriptions.

The geological structure of the Damin-i-koh, is very distinct from that of the adjoining district to the West and South, although essentially connected with both.

The gneiss rocks, micaceous schists, hornblende rocks and schists, and granite, which form the great area to the West, extend continuously into the Damin-i-koh, and pass under the more recent rocks which there occur. Along the western flank of these hills, they stretch with a very irregular outline, and extend for some distance within the boundary of the Government territory. These schistose and gneissose rocks are generally tilted up at high angles, in many places much contorted, but on the whole (within this district) they have a remarkably persistent direction and dip; their foliation planes striking from  $25^{\circ}$  to  $45^{\circ}$  East of North; and the dip varying from  $40^{\circ}$  to  $85^{\circ}$  to the N. W., occasionally they are perfectly vertical, and in a few instances, the dip is reversed; or to the South East.

Associated with the gneiss, which is the prevalent character of the rocks, are numerous beds of hornblende slates and rock, sometimes of great beauty, the hornblende being of very dark bottle-green colour, and highly crystalline, and the felspar of a pure white, or of a light epidote green colour; numerous veins of largely crystalline, and felspathic granite pierce through these rocks, and ramify between and across the foliation. In many cases these veins are exclusively composed of felspar and quartz; the felspar generally of a pinkish or flesh tint, the quartz of a dirty white. Frequently the mode of arrangement of the crystalline masses of these minerals, produces a beautiful and curious graphic-granite.

The gneiss is, generally speaking, deficient in mica; occasionally it has a granular quartzose aspect, and in other cases is highly crystalline and in thick masses or beds, so that excepting for its distinctly laminated character, it would be considered a granite (Telobad, Rajabhita). This massive variety projecting in well marked ridges across the country, is often split up by joints into nearly columnar masses, the ridges when thus divided, having, when seen from a little distance, much the aspect of huge walls of cyclopean masonry, while some of the masses, standing up singly, look like sepulchral monuments.

These rocks being essentially a portion of the great primary district to the West, will more appropriately be treated of in detail in connexion with that area.

Within the boundary of the Damin-i-koh, they stretch irregularly from near Bhooktahn Hill, on the southern boundary at the Brahmini river, by Katticoon, Nargunjo and the western flank of Muhooagurhe hill. Here the boundary turns to the East into the Puchwara pass, up which they extend to the village of Salungi, for about four miles, From this, winding Northwards and Westwards round the base of the Hill of Burgo, their outline again stretches into the Hills, some miles East from Bokrabandh; passing East of Chundna, of the large Sontal village of Soonduree, and extending into the Chuperbhita pass for some distance. In this part of the Damin-i-koh they cover an area of at least six miles in width from the boundary.\*

From the Goomani Nulla in the Chuperbhita pass, the eastern boundary of these rocks passes in nearly a right line to near Kurmatanr, where they are covered up by the sandstones of the coal-bearing group.

North of Kurmatanr, they again cover a large area within the Damin; stretching from this with an irregular outline to the west of of the Hurra coal, and skirting the remarkable hill of Gundesree to the West, they pass northwards with a slightly curved boundary into the district of Munni-haree.

Independently of this large area occupied continuously by these

\* An excellent little map of this district will be found in *Journal Asiatic Society of Bengal* No. VII. of 1851 accompanying Capt. W. Sherwill's paper.

rocks, along the western escarpment of the Rajmahal Hills, similar rocks are found in detached basins, covering several square miles of area, near to Gopikandur and Dubrajpoor,\* and again in a similar detached position encircled on all sides by the sandstone and trap rocks, near to and North of the village of Dhumni in the Chuperbhita pass.

Throughout all this area, where these rocks are uncovered, the soil resulting from their decomposition, as might be expected, is poor and sandy. Frequent deposits of kunkur occur overlying these rocks, and where this is the case, the soil is often good and productive. The greater portion of the district is tolerably level, broken up by the small projecting ridges of rock, and is thickly populated. Dotted over with the large and fine sal trees left by the Sontals in their clearings, and varied by the masses of rock whose dark ridges beetle over the richly coloured patches of wood at their base, this district affords some of the most pleasing, and perfectly park-like scenery in the Damin-i-koh (Katticoon, Rajabhita, Simr) wanting only expanses of water, to render it most beautiful.

Resting upon the upturned edges of these old rocks, quite unconformably, comes a series of conglomerate, sandstone, and shaly beds, with occasional developments of coal, and of ironstone. This group of beds stretches with some interruption from South to North through the whole range of the Rajmahal hills, no where, however, attaining any great thickness, or covering any great area. In this series, occur the several beds of coal, which have been noticed by several authors, as existing in this district.

The series consists of alternating beds of conglomerates, pebbly sandstones, and quartzose grits, of earthy sandstones, and shaly beds, with occasional beds of bituminous shales and of coal. The prevailing colour is white or yellowish-white, occasionally brown, and ferruginous, with a few beds of a deep red colour. As a whole they are very felspathic, the pebbly beds being generally of pure quartz in a felspathic cement: some of the beds are composed almost entirely of decomposed felspar. In several places the beds near the junction of the gneiss and other crystalline rocks consist of scarcely worn or rounded fragments of these rocks, in a granular cement,

\* Coloured as coal measures in Dr. McClelland's Map: Report 1848-49.

clearly pointing to the source from whence the materials forming these conglomerate and pebbly beds, had been derived.

Rejecting, for the present, the consideration of the occurrence of coal at the Motijhurna Falls, near to Sikreegully, at the N. W. corner of the Rajmahal hills; (and which it will be seen belongs to a slightly different period); all the localities in which coal has been found in this district, occur at intervals along the western escarpment of the hills, or at least near to this. The rocks associated with the coal rest invariably on the old gneissose, and primary schist rocks, for the most part dipping at low angles, or nearly horizontal, and are in all cases covered up, (and not underlaid) by the great overflowing sheets of trappean rocks, which form the larger portion of the hill district.\*

Of this coal-yielding series of rocks the lowest beds in the district are those which occur in the vicinity of the southern boundary of the Damin-i-koh district, near to the villages of Mussinia and Dhomunpore. The series here consists of alternating beds of shales, sandstones, conglomerates, &c. and a few thin layers of ironstone. The sandstones are generally of a greyish white colour derived from the admixture of carbonaceous particles, with the grains of quartz and felspar which compose the mass. Occasionally the beds are stained of a deep red from percolation of peroxide of iron; and some of the shales also are of this tint and character. The iron stone is of good quality, but of no thickness, and occurs principally in nodular masses, in the dark shales. In some of the beds of shale, thin partings of coal occur, and these beds are occasionally so intermixed with bituminous matter, that they would burn freely, although not blazing.

In the Mussinia beds, there is no seam of coal worth working.†

\* A reference to Dr. McClelland's sections of the lower or southern part of the Rajmahal hills, will show how completely we differ from him, in respect to these rocks, he representing the trap *as in all cases beneath the sandstones with coal*. A few, very few instances of dykes of trap, cutting through these rocks occur; no instance as far as I know, of a sheet or mass of trap underlying them.

† Just beyond the boundary of the Government territory, near to Mussinia, very tolerable coal is seen in the bed of a small nullah near the village of Hurrinsingah the true coal seams are not very thick, but they are separated only by highly bituminous shales, much of which could be profitably used, and which could be economically raised.

Similar rocks occur to the west of Mussinia, near the village of Dhomunpore. In these, the coal beds are a little thicker, but too poor in quality to be workable with profit independently of their very close proximity to the gneiss, and granite rocks, which renders the amount of coal and its extent uncertain.

Encircled by the overlying trap rocks, a similar series of alternating beds of sandstone, shale, and shaly sandstone appears in the valley of Dubrajpur and Gopikandur; here also found resting upon gneiss, and shistose rocks. The *coal* of this locality occurs in thin beds much mixed with earthy matter, and is of very inferior quality. In fact, it is nothing more than a bituminous shale.

The sandstones extend on the south to Saldaha, and thence to near Katticoon, where they are supported by the gneiss, as in other places. Here also thin beds of coal are found, but none of these afford any prospect of becoming a profitable source of fuel.

From this, the sandstones sweep round the slopes of the hills on their western scarp; and curve round the base of Muhooagurhe hill into the Puchwara pass; in the valley of which, there is a large area covered by these rocks, in which some beds of tolerably good coal occur, (*Burgo*). Again from the Puchwara pass, these sandstones and shales skirt the western flank of the hills, northwards to the Chuperbhita pass, preserving on the whole, a tolerably persistent lithological character. Here also, near to Chuperbhita, thin beds of coal are found.

Stretching still northwards, with some little interruption in their continuity from faulting, these sandstones cover a large area to the south of the range of Gundesree, where the coalpits (sunk originally by Capt. Tanner) near to the village of Hurra, are situated. North of this, the great flats of Munneehari and of Bhaugulpore commence, and no rocks are visible.

Independently of this continuous range of the sandstones on the west of the Rajmahal hills, there occur several detached areas of these rocks within the hill district, which will be described more in detail hereafter. Although of great interest in a geological point of view, and as connected with the history of the formation of the rocks of these hills, these are of little economical importance.

Resting upon, and covering up these shales, sandstones, and coals,

there are immense overflowing sheets of basaltic and other trappean rocks, which have spread above the sandstones, and passed over them in a molten state intensely altering the rocks, into contact with which they have come, baking them into porcelanic and glassy masses, and producing great and important changes in their aspect and texture.

These trappean rocks of varying character and composition compose the surface rocks of nearly two-thirds of the whole area of the Damiu-i-koh : stretching continuously from south to north, forming the highest ridges, as well as some of the lower valleys ; and impressing on the district the peculiar character of its scenery and aspect. In mineral composition, they vary from dense, close-grained, almost compact, and vitreous basalt, to perfect pumice ; the greater portion being of a dense and crystalline basaltic trap ; slightly vesicular, occasionally abounding with olivine, and sometimes with glassy felspar.

In structure also, these rocks present every possible gradation from the most perfectly prismatic and columnar forms, with interlocking joints, to the most homogeneous claystone, in which no symmetry of structure can be perceived. In some of the more massive varieties, the concentric spherical structure, so frequently noticed in trappean rocks, is remarkably well seen.

These old lava masses have been poured out at intervals, in many successive flows ; and have, as might have been anticipated, been irregular in their distribution over the surface ; although one fact, which most forcibly strikes the observer is the remarkable persistency in character, texture, and composition which prevails throughout the entire area from north to south, over a district of some seventy miles in length, and thirty miles in breadth.

In all these traps, there is a *comparative* absence of that great group of minerals, the zeolites, which in other large districts of the same character are so common and abundant. Of this group natrolite occurs in minute acicular crystals not uncommonly, but I have never seen it of any great beauty. Stilbite and Heulandite are also found (Karodih, Amrapara, &c.) ; and in some of the floors abundance of the chlorophaite of Macculloch. But the minerals, which in the majority of cases occur filling or lining the vesicles of the amygdaloidal varie-



ties are agate and quartz. These occur in great beauty and variety, of every size, from a mere point to some feet across; forming a thin coating on the surface of the vesicle, or partially or entirely filling the cavity. In the majority of cases, these cavities have a thin coating of natrolite immediately adjoining the trap, inside which the agates have been formed. The quartz, when it occurs, is generally the innermost or last deposited mineral. There has often been a repetition of these layers of agate, and quartz. In colour, they are generally white, or smoke-coloured; occasionally the agate layers have a red tint, while the quartz crystals are sometimes, though rarely, of a beautiful amethystine tint, (Burhait.) The agate occurs in botryoidal, reniform, and mammillated groups, and some very beautiful specimens have occurred.

Connected with these trappean rocks is one of the most interesting facts in the geological structure of the hills, bearing on the question of the mode of their formation, and evidencing the long continuance of the ancient volcanic forces which have produced these immense flows of molten matter.

The fact of these trappean rocks in all cases *overlying*, and altering the sandstones, associated with the coal beds has already been stated. But, resting upon these lower traps, and bearing all evidence of having been quietly deposited upon them, occurs again another series of beds of sands, and gravels, and of clays and muds, never attaining any very great thickness. These again have been invaded by, and covered by, another flow of trappean rock or lava, and above this again, the same facts are repeated, beds of shales and sandstones and clays occurring again and again, covered up by another sheet of now-crystalline basalt. And this remarkable fact has been in one or two cases distinctly repeated three or four times. In all these instances, the *lower* beds of the mechanical rocks are unchanged, and present their normal character of loosely aggregated sandstones, pebbly sandstones, or laminated clays; in some cases consisting largely of the disintegrated debris of the rocks on which they rest: while with equal constancy the upper beds are in all cases greatly altered, indurated and affected by the mass of lava-like rock which had been poured out over them. The evidence is perfectly clear, that during a very considerable period of time, forces, analogous to existing

volcanic forces, were in most active and powerful operation, some where within, or near to the district, now forming the Rajmahal hills; that these forces were exerted at successive intervals after periods of repose, throwing out immense flows of molten lavas; while during these periods of repose, the deposition of clays, gravels and sands, arising from ordinary causes continued to proceed. And that these intervals were sufficient to admit of a growth, and in some cases a luxuriant growth, of the plants then existing to take place.

In these upper beds, no coal has been found, but that the conditions for its formation still existed, is evident from the frequent occurrence of thin layers or beds of bituminous shale; and in several cases of carbonized stems and fragments of plants. In many of these beds, the vegetable remains are very abundant, and furnish a most important link in the chain of evidence determining the period of the formation of these rocks.

A few of the more remarkable of these fossils were figured by Dr. MacClelland, and described in his report (1848-49,) under the names of *Zamia*, *Taniopteris*, &c. He referred the beds in which they occurred to the epoch of the Oolitic rocks of Europe, and distinguished them altogether from the beds with which coal was found associated, which latter were referred to the coal measure epoch. So far as his researches extended, this conclusion appears justified. But a more extended examination of the district proves that these so-called *Zamias*, (*Ptilophyllum* of Morris,) are associated in the same beds with fossils hitherto only found associated with the supposed carboniferous rocks of Dr. MacClelland's report. (*Taniopteris*, *Pecopteris*; *Glossopteris*, *Zamia*, and *Vertebraria* being all found in the same beds.) This is an important fact bearing on the determination of the long unsettled question of the true geological era of the Bengal coal-yielding series of rocks.

Some of these *Zamia*-like fossils from the Rajmahal district appear, so far as can be determined from a comparison with drawings alone, to be identical with the fossils found in Cutch and described by Professor J. Morris in the London Geological Transactions Volume V. under the name of *Ptilophyllum*; and which Cutch fossils are associated with many other organic remains (animal as well as vegetable) which appear to be unquestionably of the Oolitic

date. In this district no animal organic remains have been found ; but these Ptilophylla occur abundantly, associated with several other fossil plants hitherto only found in the beds associated with the coal of Bengal.

There is, however, a well marked distinction to be drawn between these beds. Although, as we have stated, these fossils are found associated in the same beds, and thus prove the existence of the plants which they represent at the same time, still they are not *commonly* so found together, a prevalence of the Ptilophylla or Zamia-like group characterizing the upper beds ; a prevalence of Vertebraria and of its associated fossils characterizing the lower group. While, therefore, the whole series appears to belong unquestionably to the same great formation, a distinction into upper and lower series, may justly be drawn.

So far therefore, as present evidence goes (and to the same result the analogies of the fossils discovered in the Burdwan coal field point) *the entire group of the coal-producing rocks of Bengal proper,\* would appear to belong to the same great geological era, as the extensive formation of the Oolites of Europe ; and to be essentially distinct from, and of more recent date than the true coal measure series (of Europe).*

I doubt not that the further examination of the undoubtedly Oolitic districts which are known to occur at intervals across the central part of India (Bundelcund, &c. &c.) will enable the accuracy of this conclusion to be fully and satisfactorily tested, and will throw much light on the succession of rocks in India, a point as yet in considerable obscurity.†

Above all the rocks noticed before and in many places forming a considerable thickness on the tops of the highest ridges, occurs

\* I include here the Damoodah and Adji coal field ; the Ramgurh coal fields described by Mr. Williams, the Kuhur bali coal field, described by Dr. McClelland ; the Rajmahal hill coals and a few isolated patches which occur between. Regarding the coals of the Soane Valley I have no information.

† Some of the fossils we have found have a triassic aspect and probably indicate a period, a little more ancient than the oolitic. Unfortunately we have as yet nothing but vegetable remains, the conclusions derived from which, must always be unsatisfactory.

a remarkable vesicular, and concretionary conglomeritic rock, highly ferruginous, and in many places so charged with peroxide of iron that it can be used as an ore of iron. It frequently stands up in high, steep, and boldly projecting cliffs, and though traversed by many joints is so coherent, that it breaks off in huge masses of many hundred cubic feet, found at lower levels on the hill sides, while the smaller, more broken and more rounded masses, are scattered over the surface of the country. This curious rock is in some cases associated with and passes into irregularly bedded hard ferruginous sandstones, but generally speaking the whole thickness is of the conglomeritic structure noticed above. In it occur, sharply angular as well as rounded (slightly) pieces of sandstone shales, pebbly grits, &c. all identical with those which occur *in situ* beneath it in the series. Many of these are derived from the altered shales, and sandstones below the trap. The general aspect of this rock when weathered, is exceedingly rough and scoriaceous; but on a fresh fracture the mass has all the concretionary semi-crystalline semi-vesicular aspect of the well known nodules of kunkur. In a few cases it is calcareous as well as ferruginous, and then the resemblance is even more striking. It is in fact an iron-tufa due to similar causes, and presenting exactly the same general character, as ordinary calcareous tufa, save that it is ferruginous instead of calcareous.\*

Along the flanks of the hills many detached, and in some cases rich, deposits of kunkur occur, which are however no where worked for lime. At Sukri-gully on the banks of the Ganges, where this kunkur occurs in a tolerably regular bed, in addition to the detached concretionary nodules and strings disseminated through the red stiff clay which overlies it, it is worked to some extent for the manufacture of lime. The same deposit under precisely similar circumstances, shews at the projecting point on the Ganges near to

\* This is the rock called *Laterite* in Capt. Sherwill's papers and Dr. MacClelland's reports. It were well that this term (laterite) were either abandoned altogether, or were more strictly defined in its application. It has been used as applying to rocks so altogether distinct both in character and age, that it is useless as a definitive term, and its original application to a clay has been quite forgotten or overlooked.

Tegrogunj, and here also might be economically valuable. In the northern part of the hills near Simuria a mass of calc tufa\* passing into nodular kunkur is found, in one of the valleys intersecting the hills, and similar deposits occur in several other places, stretching all along the western flank of the hills. And in some places thick and extensive (Chuperbhita pass, &c.) deposits of nodular kunkur cover the low broken ground at the base of the hills.

#### ECONOMICAL PRODUCTS.

The occurrence of beds of coal associated with the sandstones of this district has already been noticed above. Of the localities where the mineral was known to occur in 1851, Captain Sherwill has given a list† enumerating thirteen. Of these at least eight are utterly useless as productive sources of coal, in some coal does not exist at all, while in others bituminous shale only occurs, of no use as a fuel. In addition to the localities mentioned in this list, on the revenue survey map of the Damin-i-koh, as well as on the index map of the Bhaugulpore district, "coal" is marked as occurring a short distance north of Kooskira, at the eastern extremity of the Puchwara pass. There is however no trace of coal in this locality.

Of those places which offer any promise of producing useful fuel, the Brahmini Nuddi, on the south of the hills; the districts of Dubrajpore to the north of this, of Burgo, in the Puchwara pass; and of Hurra in the northern part of the hills, are alone worthy of any detailed notice.

In the Brahmini Nuddi, coal is found close to Mussinia in thin beds of very slaty character. None of these beds exceed two feet in thickness and the best of them contain at least 50 per cent. of shale or earthy matter; the true coal seams not being more than a few inches in thickness. At Dhomunpore some three miles to the west of Mussinia a bed of slaty coal, a little more than two feet thick is found. It is of superior quality to the Mussinia coal, but still earthy, and its small thickness and position make it scarcely worth working.

In the vicinity of Dubrajpore several thin beds of coal occur, all

\* The "bed of fresh water limestone" of Capt. Sherwill.

† Notes on a tour in the Rajmahal hills, *Journal Asiatic Society, Bengal*, No. VII. of 1851.

slaty, and inferior in quality, and of no thickness. The coal rocks here rest so immediately upon the gneiss, and are of such inconsiderable thickness, until they become covered up by the trap above, that there seems no prospect of any profitable coal beds being found.

To the east of the Koondapuhar a thin bed of black shale with minute threads of coal through it, is found.

Were every locality where such occurs stated numerically in a list of "coal localities" it would be an easy task to quadruple the number elsewhere given. It is, however, altogether a misapplication of terms to apply the word coal to materials which would themselves require a considerable amount of extraneous fuel to maintain combustion.

By much the most important locality where coal has been found in these hills is in the Puchwara pass, near the village and hill of Burgo; which was first brought to notice by Mr. Pontet in 1844: not only is the coal found here of better quality than elsewhere in the hills, but there is also a larger quantity of it.

The section as exposed in the Banslooi Nuddi shews a succession of thin beds of coal, and shaly coal from six inches to two feet thick, with black shale, and grey carbonaceous sandstone and shales, to which succeed (descending) coarse pebbly grits, shales, coal (18 inches) sandstone shales, and bituminous shales with threads of coal and thin seams not more than one to two inches, and coal 2 feet 8 inches. Then comes a series of beds of shales, sandy shales, clunch and sandstones, with 3 layers of coal of different qualities included, none exceeding 6 inches, attaining a thickness of about 45 feet thick under which we have black shales, with coaly partings, viz :

|  |   |   |   |   |
|--|---|---|---|---|
| Coaly shale and coal, . . . . .  | 1 | 0 |   |   |
| More earthy shale, . . . . .   | 0 | 9 |   |   |
| Coal, . . . . .  | 1 | 3 |   |   |
| Shale, . . . . .   | 0 | 7 | 3 | 7 |
| <hr/>  |   |   |   |   |
| Grey shales, . . . . .   | 0 | 9 |   |   |
| Ditto shaly or clunchy sandstones, . . . . .                               | 1 | 6 |   |   |
| Hard carbonaceous sandstones passing downwards into gritty beds, . . . . . | 4 | 6 |   |   |

|   |    |    |
|---|----|----|
| Black laminated shales full of fossil leaves (Glossopteris, &c.)  | 0  | 9  |
| Coal and coaly shale . . . . .  | 1  | 0  |
| Black sandy shale thinly laminated, . . . . .   | 0  | 10 |
| Coal rather shaly, but good, . . . . .  | 1  | 6  |
| Shale, grey and ferruginous with <i>Vertebraria</i> , &c, . . . . .   | 0  | 3  |
| Coal, with earthy partings, . . . . .   | 4  | 3  |
| Blackish bituminous shale (fossils) . . . . .   | 1  | 6  |
| Sandstones, grits, and conglomerates with a few layers of shaly beds extend from this to the junction of the conglomerate and gneissose rocks, about, . . . . . | 50 | 0  |

From this section it will be seen that there is a considerable amount of coal in this locality, and of very tolerable quality. That there is no bed of any value below those seen, is obvious from the proximity of the old primary rocks, while the occurrence of the great flow of trap above limits the series in that direction. The beds are slightly rolling, but as a whole have a very slight dip to the N. E. and although the rocks are not well seen in the valley to the north of the intervening hill of Burgo, I am satisfied that the coal seen there is one of the same beds as occur in the Bansloi Nuddi, and that the series is continuous under that hill. The depth of this covering of trap rock by preventing the sinking of shafts would prove a serious difficulty in the economical extraction of this coal. And, at present, its distance from any economical means of conveyance would render it expensive to bring to market. I believe there is a fair prospect of a considerable amount of useful fuel being found here, and such as would amply suffice for any local demand, although perhaps it could not be profitably brought into competition with other coals more favourably circumstanced.

The beds of coal stated to occur in the Chuperbhitia pass, are altogether useless as sources of fuel. Other beds of coal of greater thickness and better quality occur about a mile south of the Goomani Nuddi, near to the village of Sulda, and between it and Jhupani. Here there are two beds each 3 feet thick (including the shaly partings,) associated with thick bedded massive sandstones. The floor of one of these beds of coal is white earthy sandstone, and its roof sharp grits; the other (the lower) is also covered by earthy whitish sandstone, but rests upon a blackish carbonaceous

grit. In their associated beds, in the prevalence of thick massive sandstones, as compared with the constant repetition of successive beds of shales and sandy beds, the group of rocks here differs materially from the Burgo beds. Judging from mineral character, (for unfortunately there is no continuous section;) they seem to belong to a higher portion of the series and to be in the general section above the Burgo beds. The coal is all earthy.

Passing northward now to the Hurra field, we find a very considerable amount of coal, but of a very inferior quality close to the surface. Here Capt. Tanner sank some pits to ascertain the value of this coal, and more recently Messrs. Duncan and Sweedland, I was informed, sank a pit to some 60 feet in depth, but did not succeed in finding any beds, other than those visible at the surface, or rather exposed in the bed of the little hill stream adjoining. Indeed the close proximity of the gneiss rocks to the east (within 150 yards of the spot) might have led to the anticipation of such a result. This pit gave a section of

|  |    |   |
|--|----|---|
| Alternating beds of shaly sandstone and shale, . . . . . | 9  | 0 |
| Coaly shale and coal, . . . . .                          | 4  | 6 |
| Mudstone, with coaly partings, . . . . .                 | 2  | 6 |
| Coal or coaly shale, . . . . .                           | 2  | 0 |
| Mudstone as before, . . . . .                            | 1  | 0 |
| Sandstones of different degrees of hardness, . . . . .   | 30 | 0 |
| Sandstone and shale.                                     |    |   |

There is above these beds, another bed of the same coaly shale, or coal, but none of these afford coal of any good quality, there being in all at least 60 per cent. of earthy matter or shale. For such purposes as burning lime or bricks this fuel might be turned to profitable account, although for the ordinary uses for which coal is employed, it would prove an inferior fuel. The extent of it is, no doubt, considerable, dipping with a slight inclination to the East and N. E.\*

\* In a subsequent communication, dated 15th Feb. 1854, the value of these coal beds in the Damin-i-koh, as likely to produce an abundance of good useful fuel for the purposes here indicated (burning bricks, lime, &c.) and, as possibly on more extended investigation, and on being opened out more fully, proving of better quality and of greater extent, than judging from the portions now seen,



At the Motijhurna falls, near to and south of Sukri-gully the same gentlemen, as I was informed, sunk a pit in search of coal. There could have been no previous examination of the adjoining country; as the slightest investigation would have shewn the utter futility of such an attempt. The hill is composed of successive sheets of columnar and massive trappeau rocks, between the flows of which, as has been stated to be the case commonly, occur thin deposits of shales, and sands, in which are imbedded stems, and fragmentary pieces of plants. A subsequent flow of molten lava passing over these, has charred the stems, has baked the mud into hard shale, and has indurated the irregularly deposited patches of sand into a hard semi-vitreous sandstone. The same phenomena are twice repeated; but the whole thickness of the intercalated mechanical deposit does not in either case exceed a few feet\* while below are several hundred feet of nothing but basalt. It is difficult to conceive how any discovery of coal could have been anticipated in such a locality.

In many places throughout the hill district, iron is smelted in the same rude way as in the adjoining districts. The source of the ore used, is almost invariably the highly ferruginous sandstones which occur, as noticed above, at the top of the series beneath the trap rocks. Some of the beds of this sandstone or rather some portions of the beds, are very highly impregnated with peroxide of iron, both

they appeared to be, was more fully insisted upon. The most promising localities were indicated, and the peculiarly favourable combination of circumstances at present existing for working such beds from the great demand for coal for the heavy railway works in the neighbourhood, was alluded to. It was strongly urged that every encouragement should be given to such undertakings, and in accordance with these views the officer in charge of the Government territory of the Damin-i-koh has been instructed by the Government of Bengal, through the Board of Revenue to facilitate such enterprizes in every way in his power, and on most liberal conditions.

\* There are only two falls here, not three, as stated, and these beds of shale, &c. occur at the bottom of each fall. One of the indurated patches of sand, has from some rude resemblance which it presented, been said to be a *fossil head of a rhinoceros*, without apparently the slightest consideration of the extreme interest which would attach to the finding of such a fossil in this locality, as elucidating the geological date of the rocks in which it occurred.

disseminated, and investing the grains of the rock, and also forming thin coatings on the fissures and joints. The so-called laterite of these hills, (see above) is also in one or two places used as a source of the iron, but the other is preferred.

The large and widely spread heaps of scoria and slag, the remains of former workings, evidence the extent to which this smelting of iron has been formerly carried on, and this in many places where no trace of such furnaces now exist, and where no tradition of their former existence can be discovered.

The crude or catcha iron, produced, as is ordinarily the case, in small hemispherical lumps, or blooms, is either used for the supply of the local workmen, who employ it in the manufacture of the few agricultural implements required in the district, or it is sold to dealers who carry it away to Jungypore, Moorshedabad, and other marts. The iron is all wrought by Kols, who live quite distinct from the Sontals, or the hill men, and constantly migrate in pursuit of their labour. The operations are carried on in these hills on the smallest scale, and with nothing approaching to the regularity of system which characterizes the same manufacture in the large iron working villages of the adjoining district of Beerbhoom. Nor is there, I think, any prospect of this manufacture being so extended, as to become available for the supply of any large demand. The ore is too much scattered over a great area, ever to suffice for operations on a large scale. At Sukri-gully, which had been indicated as a locality favourable for the manufacture of iron, not even this rude, and limited native system of operations is carried on. And there does not appear the slightest ground for supposing that there exist in that vicinity conditions favourable for such a manufacture.

But while satisfied that there is no prospect of obtaining from this or the immediately adjoining districts any large supply of cast-iron or of iron adapted for large works, I am equally certain that considerable improvements could be made on the present rude system of working; still keeping in view the production of malleable iron by a single process, as at present. A single and very simple improvement in the mode of expressing the large amount of slag, which comes from the hearth mixed up with the spongy metallic mass, would in itself add much to the value of the iron; and coincidentally with this

some improvements on the blast used and the mode of producing it, would be needful. The immense loss which occurs in refining the first smelted iron, or as they say making it *pucka*, a loss which amounts often to fully one-half of the entire weight, at once points out the great want of such improvements : while the excellent quality of the iron obtained, and its admirable adaptation for many purposes are unquestionable.

Beds of fine siliceous clay, which with proper treatment would yield excellent fire bricks and crucibles, and prove an admirable material for the manufacture of many useful articles of hard pottery, occur in several places. This clay is white, with a slight pinkish or grey dove-coloured tint; burns when properly cleaned to a dead cream white; is very refractory, and only requires a slight admixture of some other more tenacious clay to give it sufficient adherence to bear moulding. This is the Khari of the natives, and is the same as that which occurs near to the Ganges north of Colgong; and which was so long since as 1840 very strongly recommended by Dr. O'Shaughnessy for the purposes I have mentioned. Within the district of the Rajmahal Hills, it occurs in several places; near to Lohuria, in the ridge joining the hill of Gundesru, &c. &c.; and again in abundance at Khari-puhar in the South, outside the Damin-i-koh boundary. This clay has been partially worked at Patturghatta, on the banks of the Ganges, for pottery; wood being here used as the fuel in baking: elsewhere it is only dug for the ordinary uses to which it is applied by the natives, colouring houses, writing, painting, &c. In connexion with the coal of this district, it will hereafter prove a valuable material.

There are few other mineral products within the district of any value. Some of the highly indurated beds of shale which occur under the trap-rocks, would with proper selection, afford stones well adapted for the purposes of coarse hones, or sharpening stones (oil stones); and might be so applied; of this kind is a bed near Burhait of a salmon-coloured tint (erroneously described as "clinkstone,") from which, with a little care in the selection, good pieces could be obtained.

Throughout the hills, the trap rocks themselves yield the most admirable road materials. Throughout the Damin-i-koh, excellent

roads traversing the district in all the principal directions have been constructed under Mr. Pontet's direction. In this respect, as in many others, the Government district offers a most striking and most favourable contrast to the adjoining zemindaris, in which it is almost impossible to move about excepting on Elephants, and which are marked, not so much by the badness of the roads, as by the total absence of any of these means of communication.\*

From some of the sandstone beds, (as at Mussinia) mill-stones are extracted, but in the rudest and most expensive way, by cutting the stone out of the solid mass from the centre of the beds. The demand for these is small, and but few are extracted.

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In addition to the district referred to above, the small area in which coal, and its associated rocks occur near to the villages of Khutung and Tungsuli, on the northern bank of the river. More about five miles from Soory, (Beerbhoom) was carefully examined.

It is quite isolated, being surrounded on all sides by primary slates, gneiss, and granite rocks. From east to west the sandstones and shales extend about 2 miles in length, and from north to south about one mile, covering an area of about  $2\frac{1}{2}$  square miles. There is no thickness of these rocks, and among them no coal of any value occurs. There are thin seams, and irregular layers, but of no commercial value. The rocks have a general but slight dip to the south by west (about 50), and fill a little hollow or basin in the primary rocks.

\* It is, I think, to be regretted that more care and skill have not been devoted to the selection and laying out of these roads within the Damin-i-koh; and to rendering them more permanent. The Sontals are fully alive to the value of the facility of communication, and readily construct a road; but they naturally take it to, or through their own villages, or divert its course to avoid the slightest obstacle. Many of these roads are, in consequence of these deviations, nearly twice as long as they need have been from point to point. This may be of little consequence now, but every year is extending the cultivation of these hills; and every year is rendering it more desirable that these lines of communication should be improved. The same time and labour now devoted to the annual repair of a road the direction of which may be changed the next month, would suffice for the making and repair of a more permanent road in a fixed direction.

This little area is interesting only as proving the former extension of the formation to which these rocks belong, but is economically, of no value whatever.

No. 334.

Copy of this letter and of its enclosure forwarded to the Asiatic Society.

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*On the quantity of Silt held in suspension by the waters of the Hooghly at Calcutta, in each month of the year. By HENRY PIDDINGTON, Curator, Museum of Economic Geology.*

I some years ago (1842) collected for examination a set of two bottles of the waters of the Hooghly taken on the 1st of each month, at noon, at Calcutta and at Burisaul, with the view of obtaining a fair average of the actual amount of silt held in suspension by the waters of the Hooghly and the Burrampooter near their mouths. The time of tide was purposely neglected, as either high or low water, or any intermediate term between these would have given a result perhaps farther from a fair average than taking it at all times.

One set of these bottles I sent to professor Ehrenberg for his researches on the Infusoriæ. His reply did not reach me, but Dr. Falconer informed me that he had received them and spoke highly of the curious results he had obtained. A press of other matter prevented me from following out the enquiry I then proposed to myself, and the bottles remained in the Museum.

In the course of some private researches connected with questions arising in my mind as a member of the Hooghly River Committee, I was again desirous of ascertaining the average amount of silt, and I fortunately found that 11 out of 12 of the Hooghly-water bottles were yet forthcoming, but only seven of those from Burisaul; but the loss of these last was not so much to be regretted, as Burisaul is not favourably situated for the collection of specimens of water from the great Ganges. The results here stated then relate to the Hooghly only, at Calcutta.

The annexed table represents in columns the results obtained in each month from a given number of fluid ounces of water ; column A being the contents of each bottle carefully measured, the mean of which is  $25\frac{1}{2}$  fluid ounces ; column B represents the total amount of sediment of all kinds as found, varying from 29.25 gr. in June to 3.25 gr. in October !

*Tabular statement of the amount of Silt in the water of the Hooghly at Calcutta for each month in the year 1842. The water being taken at Noon, on the first day of each month.*

| 1842.          | A<br>Quantity of<br>water. | B<br>Total of sedi-<br>ment. | C<br>Earthy mat-<br>ter. | D<br>Carbonate of<br>Lime. |
|----------------|----------------------------|------------------------------|--------------------------|----------------------------|
|                | Oz.                        | Grs.                         | Grs.                     | Grs.                       |
| January, ..... | $22\frac{3}{4}$            | 4.75                         | 3.00                     | 1.75                       |
| February, ...  | $26\frac{1}{4}$            | 7.10                         | 00.00                    | 7.10                       |
| March, .....   | 28                         | 24.00                        | 6.25                     | 17.75                      |
| April, .....   | $26\frac{1}{4}$            | 27.75                        | 11.15                    | 16.60                      |
| May, .....     | $23\frac{3}{4}$            | 18.10                        | 6.45                     | 11.65                      |
| June, .....    | $24\frac{1}{2}$            | 29.25                        | 21.00                    | 8.25                       |
| July, .....    | $25\frac{1}{4}$            | 11.00                        | 6.40                     | 4.60                       |
| August, .....  | $27\frac{3}{4}$            | 13.65                        | 5.50                     | 8.15                       |
| September,...  | $26\frac{1}{2}$            | 11.65                        | 5.90                     | 5.75                       |
| October, ..... | $22\frac{1}{2}$            | 3.25                         | 2.15                     | 1.10                       |
| November,...   | 26                         | 10.00                        | 2.12                     | 7.88                       |
| December,*     | $24\frac{1}{2}$            | 7.37                         | 2.56                     | 4.81                       |
| Mean, .....    | Oz. $25\frac{1}{3}$        | Grs. 13.99                   | Grs. 6.04                | Grs. 7.95                  |

No doubt the state of tide has to do with these amounts, but the average of 13.99 gr. for the whole year is perhaps not very far from the truth ? Column C contains the weight of earthy matter

\* December Intercalated between November and January.

only, when separated from the amount of Carbonate of Lime which, as will be seen below, it was both necessary, and of great interest to obtain. Column D shews the amount of Carbonate of Lime ; and herein a very curious fact, which is of much geological importance was disclosed, namely, that in some months so large a portion of Carbonate of Lime is held in solution by the waters of the Hooghly, that, as the Carbonic Acid evaporates, it is deposited in a crystalline crust at the neck and on the sides of the bottle, and in a few of these months it even forms a small cup-shaped stalactite on the apex of the bottom of the bottle ! adding thus very largely to the actual solid contents of the water when we come to consider them geologically.\*

The table thus shews, as a mean result, that while the average of other earthy solid matters amounts only to 6.04 grains, the carbonate of lime amounts to 7.95 grains, or nearly one-third more in weight ; so that a rock formed of such silt would contain in round numbers 60 per cent. of carbonate of lime ! or be in other words a good *Kunkur* !

Reducing the fluid (apothecary's) ounces of water to cubic measure at 1.73296 inches to a cubic ounce, the average quantity of water 25.33 oz. will be equal to 43.89587 inches ; which, to save decimals, we may call 43.90 cubic inches of water, containing 13.99 grains of silt ; which for a cubic foot will give 550.677 grains or  $1\frac{1}{3}$ th of an ounce by weight of solid silt !

I had also collected a small quantity of the silt deposited in the tanks in which the river water at Chandpaul Ghaut is pumped up for the aqueducts of the town, which contains, I find, 10.85 per cent. of calcareous matter, and taking this to be the average of the silt, I found that a cubic inch of it, moistened and beaten hard, and

\* In a paper "*On the fertilizing principle of the inundations of the Hooghly*," published in vol. xviii. of the Society's Transactions twenty years ago (1833) I shewed, page 224, that lime, and not vegetable matter, was probably the fertilizing principle of the silt of the Hooghly, in which it was found to exist to the amount of 6 per cent. I also shewed that the drainings from the mud were highly impregnated with carbonic acid holding lime in solution. Sir Charles Lyall, Elements of Geology ; page 89, vol. I. of edition of 1841, says in reference to this, that it throws great light on the mineralization of organic bodies.

dried to the consistence of a sun-burnt brick (a *kacha* brick as it is called) weighed 424 grains, so that each cubic *foot* of water contains 1.2988 cubic *inches* of solid matter; or in other terms, each cubic foot of water holds  $\frac{1}{1330}$  (one thirteen hundred and thirty-third) part of its bulk of silt in suspension on an average of the year, opposite to Calcutta.

In the months of March, April, May and June, in which the largest amount of deposit is shewn, the average it will be seen is much higher, being as follows.

|                                  | Cub. Ins.            |
|----------------------------------|----------------------|
| Average quantity of water, ..... | 25.50 oz. or 44.190. |
| of silt, .....                   | 24.77 grs.           |
| of carbonate of lime, .....      | 13.56 grs.           |
| of silt, in each cub. foot,      | 1678.92 grs.         |

being  $\frac{1}{436}$  part (one four hundred and thirty-sixth) of its bulk, of which more than one half or  $\frac{1}{2} \frac{3}{4} \frac{5}{7}$  is carbonate of lime!

This is far higher than the Rev. Mr. Everest's result for the four months of the rains at Benares, of  $\frac{1}{835}$  in bulk,\* but it is evident that no parallel can be established between the waters of the great Ganges at Benares and those of an offset of it like the Hooghly, flowing through a vast extent of alluvial soil; depositing and receiving on its progress the detritus of both new and ancient alluvial soils, and of primitive and transition rocks from the country on its western shores; but the whole result now obtained here is a highly curious one, and I think well worthy of being placed on record.

I find that water taken on the 24th January, from the middle of the river is turbid, but nothing more, and cannot hold much more solid matter in suspension, than is shewn by our table. Upon testing it by lime-water the large quantity of carbonic acid gas which it holds in solution (and which indeed is seen rising from it in bubbles when the bottle has been carried through the heat of the sun) is immediately apparent,† as is also the lime by Oxalate

\* See Rev. Mr. Everest's paper; Journal As. Soc. vol. I. p. 238 quoted by Sir Charles Lyall also, in Principles of Geology, p. 269.

† The absence of sulphates being first ascertained by Muriate of Barytes and the carbonate redissolved by Muriatic acid.



of Ammonia ; both assays demonstrating clearly the perfect truth of the foregoing details.

POSTSCRIPT.

It was correctly remarked, I think by Major Baker, when this paper was read at the meeting of the Society, that water taken at the surface would hold less silt in suspension, as that at the bottom would hold more, than the true mean amount. Agreeing fully in this, I have contrived a plan for obtaining water at any moderate depth, and am collecting another series of specimens to include both the surface and the mean depth water. I have moreover obtained the assistance of Mr. H. Hiller, Commanding the H. C. Outer Floating Light Vessel, and have supplied him with directions so that I trust we shall be able to have this singular problem fully investigated in a year or two.

H. P.

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*Notices and Descriptions of various Reptiles, new or little known.—*

*By* EDWARD BLYTH.

(Continued from Vol. XXII. p. 655.)

CALAMARIA CATENATA, nobis, *n. s.* (*C. monticola*? Cantor, *P. Z. S.* 1839, p. 50).\* No anterior frontals: the vertical plate broad, pentagonal, and almost as large as the occipitals: 13 rows of scales: scutæ 187; scutellæ 41 pairs. Predominant colour dusky above, formed by minute black specks upon a pale ground-tint; below pale buff with an iridescent lustre, and marked with lateral series of square black spots chiefly upon alternate scutæ. Four black lines throughout above, the upper bordering a pale medial streak, which is simple upon the tail, but along the body forms a concatenation of elongated oval spots. An imperfect whitish-buff collar, and similar marks before and behind the eye. Length of specimen 17 in., of which tail  $2\frac{1}{2}$  in. From Asám. Mr. Robinson.†

C. RETICULATA, nobis, *n. s.* Vertical plate hexagonal, angulated to the front, and not half so large as the occipitals: supra-orbital

\* "*C. olivaceo fusca, collari, latè flavo, lineâ dorsali albicante, abdomine citrino.* Scut. abd. 125; scutel. subcaud. 44. Hab. Naga Hills."

† This and other species sent by Mr. Robinson, we much suspect are from the Khásya hills, or other upland territory.

large and subtriangular. Thirteen rows of scales: scutæ 136, 138; scutellæ 27, 28 pairs. Colour shining dull black, brilliant and iridescent below: minute yellowish-white specks on the sides of the mouth, throat, and along the sides of the body. In spirit the edges of the scales are seen to be of a deep black, imparting a reticulated appearance. The larger of two specimens measures 12 in., of which tail  $2\frac{5}{8}$  in. From Asám. Mr. Robinson.

*C. TENUICEPS*, nobis, *n. s.* Colour iridescent black above, yellowish-white below. Nearly affined to *C. LONGICEPS*, Cantor, but the head anterior to the eyes much less elongated, and the posterior frontals consequently are about as broad as long: vertical plate elongate-hexangular, broadest anteriorly: head conical, narrow; the jaws of equal length. Thirteen rows of scales. Scutæ 138; scutellæ 37 pairs. Length of specimen 14 in., of which tail 2 in. From the vicinity of Darjiling. Capt. W. S. Sherwill.

The two following species of this genus are remarkable for having the posterior frontals united.

*C. FUSCA*, nobis, *n. s.* Of an iridescent dull black colour throughout, the ventrals slightly margined paler. Head small, narrow. Vertical plate pentangular with rounded anterior base, the posterior lateral angles so obtuse in some that the plate might then be described as triangular: occipitals very large, elongated. Thirteen rows of scales. Scutæ 155-7; scutellæ 30-34 pairs. Length 15 in., of which tail 2 in. Young obscurely striated with longitudinal rows of pale dots. From Darjiling. Capt. W. S. Sherwill.

*C. OBSCURO-STRIATA*, nobis, *n. s.* Much affined to last: the muzzle less obtusely pointed, and the anterior frontals conspicuously smaller. Iridescent brown-black, the under-parts particularly lustrous; obscurely streaked throughout with a pale band occupying the adjoining portions of the fourth and fifth rows of scales on each side, a narrow pale line also along the middle of each of the first three rows, and three similar narrow pale lines along the back, all alternating with dusky lines. Thirteen rows of scales. Scutæ 153-163; scutellæ 40 pairs. Length of the larger of two specimens  $11\frac{1}{4}$  in., of which tail 2 in. From Rangoon.

The next has both the anterior and the posterior frontals, respectively, united or undivided.

C. BICOLOR, nobis, *n. s.* Dusky-plumbeous above, buffy-white below, throughout; these colours gradually blending, and not abruptly demarcated as in C. TENUICEPS. Vertical plate pentangular, broader than long, or forming almost a triangle laterally truncated: rostral large and broad; the muzzle consequently obtuse; and the head broader and flatter than usual in this genus. Seventeen rows of scales. Scutæ 210; scutellæ 75 pairs. Length of a specimen  $19\frac{1}{2}$  in., of which tail  $4\frac{2}{3}$  in. From Asám. Mr. Robinson.

CORONELLA CALLICEPHALUS, Gray, *Ann. M. N. H.*, Dec. 1853, p. 390.\* A beautiful species, with form and scutation of head as in the European COLUBER ESCULAPEI (as figured by Schlegel); but the eye somewhat smaller. Nineteen rows of scales: scutæ 201, 211; scutellæ 56, 65 pairs. Colour a light brown, paler below. Head with a median black line over the vertical and occipital scutæ, and another continued from each eye to the first of a series of about 18 semi-annuli, which in the young consist of large and broad white-edged black spots, reaching down to the abdominal scutæ; but in adults the black of the interior of these spots disappears more or less completely, leaving only the pale-margined black edge, so that two narrow black transverse bands remain in place of the single broad black spot of the young: also at about the ninth or tenth of the latter from the head, two narrow black dorsal lines commence, which at first are broken and irregular, but gradually become continuous and well defined towards and upon the tail, where they cross its transverse bands and are continued to the extreme tip. Length of a specimen 27 in., of which tail 4 in. From Asám. Mr. Robinson.

XENODON PURPURASCENS, Schlegel. The varieties of colouring of this Snake are extraordinary; even more so than those of LYCODON AULICUS. Two adults in spirit from Goalpara are entirely of a pale colour (evidently, however, much blanched), *without traces of markings*. Another, from Asám, is of a dull red-brown above, with narrow black transverse bands; lower-parts reddish-pearly, with two rows of somewhat indistinct black spots, mostly on alternate scutæ: head-markings indistinct. A third variety (*Coronella albocincta*, Cantor, *P. Z. S.* 1839, p. 50), also from Asám, is of a clay colour,

\* When the above description was taken, we had not seen that by Mr. Gray, which is less detailed.

the scales black-margined and sprinkled over with minute black spots, and the entire length marked with about 24 black-edged white semi-annuli; beneath, the black spots are more developed than in the last variety, and are more or less continuous towards the vent: the usual head-markings distinct. Two others, from Goalpara and Lower Asám, nearly resemble the last, but have no white semi-annuli, nor markings underneath the tail or anterior third of body. Others, again, from various parts, including central\* and S. India and Ceylon, also the Tenasserim provinces, have the upper-parts more or less dark, and variously freckled, often with imperfect semi-annuli placed near together, and alternately distinct and comparatively obscure: the under-parts commonly spotless; and sometimes the collar quite black. A single young specimen from Ceylon has 3 rows of black spots continued upon each scuta as far as the vent, where the medial row ceases, and the other two rows are continued to the tip of the tail: above, the black semi-annuli are divided, and the halves placed alternately to the right and left, becoming gradually indistinct upon the hinder half. Upon a first view, this might be considered a distinct species; but we can perceive no structural variation from the rest, and intermediate varieties most probably occur. In all, save the first, the peculiar markings of the head readily indicate the species; as do the rostral and anterior frontal plates from other Indian serpents.

*COLUBER NIGROMARGINATUS*, nobis, *n. s.* Nearly affined to *C. RADIATUS*, Schlegel, but attaining the size of *C. MUCOSUS*, (L., v. *Blumenbachii*, Merrem): our largest specimen measuring  $7\frac{3}{4}$  ft. long, of which the tail is 2 ft. 1 in. Colour a bright pea-green (changing in spirit to blue), paler below, each scale of the upper-parts margined with black. Upon the shields of the crown the black margins are extremely slight though present, and they gradually increase in breadth posteriorly until about the middle of the entire length, when the two colours resolve into four black alternating with three narrower blue streaks which are continued to the end of the tail. Eye larger than in *C. MUCOSUS*, much larger than in *C. RADIATUS*. One large superior and one small inferior præ-ocular plate; and a single frænal, the latter as in *C. RADIATUS*, to which

\* Ammerkántak, towards source of Nerbudda; 3700 ft. elevation.

the present species bears a near approximation in the details of its structure. Sixteen rows of scales, the four median slightly carinated. Scutæ 192-4; scutellæ 126-132 pairs. Hab. Vicinity of Darjiling, where procured by Capt. W. S. Sherwill, who sent with it examples of *C. RADIATUS*, *C. KORROS*, and *C. FASCIOLATUS*. Dr. Kelaart has also favoured us with *C. KORROS* from Ceylon; but the species does not appear to have been hitherto observed in the Indian peninsula.

*C. PRASINUS*, nobis, *n. s.* Wholly green, becoming verditer in spirit; glaucous below and bordering the mouth: 19 rows of slightly carinated scales: scutæ 205, 6; scutellæ 107, 8 pairs. Vertical shield triangular with rounded apex; rather larger than the supra-orbitals, and rather smaller than the occipitals: a single large præ-orbital, and one elongate-oval frænal. Tail suddenly tapering. The larger of two specimens measures 37 in., of which tail 9 in. From Asám. Mr. Robinson.

*C. HEXAGONOTUS* (?), Cantor,\* var., adult. Length 4 ft., of which tail 15½ in.; the latter remarkably slender. Colour brown, paler below; the anterior fourth of the body marked with transverse dusky bands, which become gradually more obscure till they disappear. Seventeen rows of slightly imbricated scales, the median row hexagonal. Vertical plate large, pentagonal, broad to the front. Two præ-orbitals, the lower small and bordered by the third and fourth labials; the fourth labial bordering the eye, which is of moderate size; two post-orbitals, and a third or infra-orbital bordering on the fourth, fifth, and sixth labials: nasals large, elongate, the nostril opening in the middle, near the outer border of the anterior frontal; a single small subtriangular frænal. Scutæ 195; scutellæ 144 pairs. Hab. Arakan (Ramri)?

*C. DIADEMA*, Schlegel; *C. Oppellii*, Wagler. This is a little known species; and two examples of it in our museum (origin uncertain) would not be readily recognised from Russell's plate (II, 30), which would appear to have been taken from an old and remarkably thick individual. One of the Society's specimens is of about equal length to that figured by Russell, but is much more slender; the other is smaller. The markings of the head are very peculiar, as the transverse black band from eye to eye and continued below the

\* *J. A. S.* XVI, 921.

eye, and the four black specks on the two occipital plates. Upon the nape is a longitudinal black stripe, followed by a series of black spots along the spine, the first few of them being round, the rest gradually assuming the appearance of short transverse bands, much more regular and placed nearer together than as represented by Russell: towards the tail they diminish in size, and upon it are reduced to a series of minute black specks. Their number, from head to base of tail, amounts to 75. Alternating with the dorsal bands is, on each side, a series of smaller lateral transverse bands, which begin on the sides of the neck as large round black spots, following two oblique streaks behind the eye, and disappear altogether on the tail. They are placed with great regularity; and on the borders of the abdominal scutæ is a further series of black spots. Such are the markings of our larger specimen, these being of an unmixed black. In our smaller example, all the dorsal black bands have the middle of each scale marked with the pale clay-colour which constitutes the general ground-tint, the lateral streaks are less decided, but the spots on the borders of the scutæ are more so, and every alternate scuta has an additional spot near each lateral margin. There are 19 rows of perfectly smooth (or not carinated) imbricated scales. Eye rather large: a great upper and small lower præ-orbital; one large subquadrate frænal; two post-orbitals: and the fifth and sixth labials border the eye below. Scutæ 207-8; scutellæ 98 pairs. Length of our larger specimen  $36\frac{1}{2}$  in., of which tail  $9\frac{1}{4}$  in.

*C. pictus*, Daudin; *C. Plinii*, Merrem (Russell, I, 29). Of this little known species, Mr. Jerdon has favoured us with a young example, from S. India. It is a true COLUBER, and not a variety of *CORONELLA BALIODEIRA*, Schlegel, as suspected by Dr. Cantor.\*

*HERPETODRYAS HELENA*, (Daudin). In the Society's museum are two specimens of a Snake, from Darjiling and Rungpore respectively, which may represent a variety of this species. Colour nearly uniform brown above, yellowish-white below with two lateral rows of dusky specks, one speck on each side of every abdominal scuta; a slight dusky streak from behind the eye; a trace of a black V-like mark on the nape; and very obscure indications of body-markings

\* *J. A. S.* XVI, 913.

analogous to those of Russell's figure (I, 32). Seventeen rows of carinated scales. The larger of two individuals measures  $29\frac{1}{2}$  in., of which the tail occupies 8 in., and head 1 in. Scutæ 189, 199; scutellæ 84, 90.

PSAMMOPHIS CONDANARIUS, Gray (Russell, I, pl. 27; very bad). Seventeen rows of smooth scales, of which the first row on each side is very broad, the second row less broad, and the rest narrow and lanceolate. General colour bright green above, pale yellow or yellowish white below; longitudinally striped, except more or less towards the head, with four pale bands: the upper occupying the fourth and half respectively of the third and fifth rows of scales, and bounded above and below with a more or less defined narrow black line; the lower occupying the lateral margins of the abdominal scutæ and subcaudal scutellæ, and defined above and below with narrow black lines which are very distinct. A pale superciliary streak bordered with black commences from the nostrils, and another below the eye, occupying the upper half of the labials. Some also shew an ill-defined pale dorsal streak. Hab. Lower Bengal?

LEPTOPHIS RUBESCENS; *Dipsas rubescens*, Gray, Hardwicke's *Ill. Ind. Zool.* This seems affined to DENDROPHIS RHODOPLEURON, Schlegel, from Amboyna. The nareal apertures are remarkably minute and abruptly pierced in the centre of the nasals. Vertical plate narrow. Neck slender. Body much compressed. General aspect of colour reddish-brown, powdered over throughout, excepting on the chin and throat, with minute specks. A row of black spots along the spine. A brown central occipital stripe, and similar lateral stripe from nostril to ear. Seventeen rows of smooth scales. Scutæ 198; scutellæ 120. From Mergui. Capt. Berdmore.

L. ORNATUS, (Shaw), var. Marked very like young specimens of CORONELLA RUSSELLII, excepting on the head. Colour olive-brown, the upper-parts marked throughout with a regular series of transverse black bars, broader towards the head, narrower and becoming indistinct towards the end of the tail; these black bars set off by whitish edges. Head marked nearly as usual. From Ceylon. Dr. Kelaart.

DIPSAS FERRUGINEA, Cantor, *P. Z. S.* 1839, p. 53. Head smooth and flat above, remarkably Frog-like, with somewhat pointed muzzle:

anterior frontals very small; the supra-orbitals larger than the vertical plate. Canines above and below well developed. Tail suddenly tapering. Colour a dull somewhat ferruginous brown above, a little marked with black and white shewing between the scales; a broad dark lateral band throughout, and above it an obscure pale band: lower-parts buffy yellowish-white, with a narrow dark lateral band on each side, and the rest thickly sprinkled over with minute black specks. Head with a narrow black median line over the frontal and vertical plates, and another over the supra-orbital, meeting its opposite on the occipital and continued to the nape: black lines also border the lips and pass through the eye. Seventeen rows of scales: scutæ 171, 175; scutellæ 56, 64 pairs. Length of one  $18\frac{3}{4}$  in., of which tail  $3\frac{1}{4}$  in. From Asám and the vicinity of Darjiling; Mr. Robinson and Capt. Sherwill.

*D. MONTICOLA*, Cantor, *P. Z. S.* 1839, p. 53. Affined to *D. TRIGONOTA* in structure. Brown above, pearly-white below, separated by a broad black streak behind the eye: lowermost row of scales black-bordered for the anterior third of the body; and traces of other lines towards the head. Fifteen rows of scales: scutæ 158, 193; scutellæ 82, 106 pairs. Length of one 22 in., of which tail  $7\frac{1}{4}$  in. Hab. Asám; Mr. Robinson.

*D. NIGROMARGINATA*, nobis, *n. s.* Also affined to *D. TRIGONOTA*, with median row of dorsal scales broad and hexagonal. No elongated teeth. Colour throughout green above, the distensible skin black between the scales; yellowish-white below. Twenty-one ranges of scales: scutæ 252; scutellæ 132 pairs. Length of one 42 in., of which tail 11 in. Hab. Asám. Mr. Robinson.\*

\* *D. TRIGONOTA*, the most common species of India proper, attains to about 6 ft. in length, but is rarely met with so large, and preys (at least those of medium size) chiefly on the *CALOTES VERSICOLOR* in L. Bengal. Vertical shield as broad as in the Malayan *D. MULTIMACULATA*, not less so as represented in Dr. Schlegel's plate. The markings are ill represented by Russell, who figures the young. The very young (about 9 in.) are of a pale ashy colour, with but slight traces of the markings of the adult; a faint lateral band consisting of three parallel somewhat darker lines is continued throughout the length, also a medial and two lateral abdominal lines, besides which the under-parts are very minutely speckled. There is a white median frontal streak bordered with black, continued into a black occi-



*TROPIDONOTUS ZEBRINUS*, nobis, *n. s.* (TR. CHRYSARGOS, Schlegel, var.?) Vertical plate twice as broad as the superciliary, and of same length. One præ-orbital and three post-orbitals. Upper-parts (in spirit) deep plumbeous, obscurely spotted with black; the sides and under-parts yellowish-white, the former throughout banded with black, and each band having a whitish spot (probably yellow in the recent specimen) above it. Head plumbeous above, the labial plates with a triangular black spot at the point of junction of each of them above, and exhibiting thus two larger spots posterior and two smaller anterior to the eye. Two or three distinct black bands across the nape. Rows of scales 15: scutæ 137; scutellæ 96 pairs. Length of specimen (which is quite young)  $10\frac{3}{8}$  in., of which the tail measures  $8\frac{1}{2}$  in. From Mergui. Capt. Berdmore.

TR. *ANGUSTICEPS*, nobis, *n. s.* Head narrow, not broader than the neck, little depressed, the eye much larger than in TR. *UMBRATUS*, and vertical shield broad. Colour (in spirit) plumbeous above, uniformly spotted with black throughout; below whitish, more or less variegated with black on the hinder half: head without markings; but a V-like mark on the nape with apex towards the occiput, becoming obsolete in adults. One specimen has 4 præ-orbital and 5 post-orbital plates; but in general these number 2 or 3 and 4: and the same specimen is remarkable for having no dark markings above, but some indistinct pale spots, probably of a vivid colour on the recent Snake. In an adult the black spots on the upper parts are almost confined to the skin between the scales, and there is no blackish colour on the hinder half underneath. Seventeen rows of scales: scutæ 167, 72; scutellæ 57, 67 pairs. Length

pitatal streak. When 2 or 3 ft. long, the white frontal streak is retained, and at the occiput are two diverging white lines, which converge and meet behind at the first of the series of imperfectly triangular white spots bordered and set off with black, which are continued throughout the body; becoming gradually more ill defined towards and upon the tail. The lower-parts are now pearly-white, a trace only of the lateral abdominal lines appearing as a row of small spots on each side, though not regularly upon every scuta. The full grown adult is altogether much darker, with the white markings tending to become obsolete; a conspicuous median black stripe is continued over the forehead and occiput, and another proceeds backward from each eye. Abdomen more or less speckled, with the lines of lateral spots more or less apparent.

of an adult 41 in., of which tail  $8\frac{1}{2}$  in. Inhabits Asám and Arakan.

TR. SUBMINIATUS (?), Schlegel. A most variable species, affined in structure to the preceding. One 16 in. long has the upper-parts speckled over with black and bright yellow on a greenish ground, under-parts whitish throughout. Head plumbeous above: a large black patch behind the occiput, surrounded except in front by orange-yellow border, behind which again the nape is bright vermilion, chiefly between the scales. A conspicuous black streak below the eye, and two black spots posteriorly towards the gape: scutæ 147; scutellæ 94 pairs. Another, rather larger, has the back almost plain dark plumbeous, paler and spotted with black towards the nape; lower-parts freckled with minute black specks, and increasingly so to the tail-tip: occiput and nape green, crossed with two orange bands, becoming redder posteriorly. All the upper labials with a black stripe, where each adjoins the next. Scutæ 157; scutellæ 66 pairs. A third, 29 in. long, has the upper-parts dark olive brown, with bright yellow spots on the skin between the scales; the lower dull pearly: nape green, followed by a vermilion space: a single broad black streak below the eye. Scutæ 155; scutellæ 83 pairs. The above three specimens are from Asám. Numerous others from Rungpore and Arakan, are mostly similar to the last, with generally a double black streak below the eye uniting beneath, rarely a single streak, and one large specimen has no streak below the eye: this would seem to disappear with age. Rows of scales 17, 19: scutæ 150, 166; scutellæ 60 to 90 pairs, but generally intermediate. Tail in all suddenly tapering. Largest specimen, which is much thicker than the others (denoting maturity), 3 ft., of which tail  $8\frac{1}{2}$  in.

TR. MACROPS, nobis, *n. s.* Eye very large; the vertical shield broad, and posterior frontals twice as large as the anterior. Prevailing hue of the upper-parts a dull vinaceous, many of the scales margined with black, and some with yellow: a series of yellow spots (about 50 in number) continued along the spine to the extremity of the tail, with a row of black spots on either side. Head and neck plumbeous, diverging on the nape where the first of the series of yellow spots is placed; a slight whitish V-like mark on occiput.

Lower parts yellowish-white, with specks and powdering of dusky; more prevalent towards and upon the tail. Seventeen ranges of scales: scutæ 164-6; scutellæ 130-46 pairs. Length of largest specimen 31 in., of which tail  $6\frac{1}{4}$  in.

Two specimens closely resemble, but a third presents some differences of colour. The row of yellow spots is wanting along the spine, also the dark band on the nape, and the pale V-like occipital mark: the under-parts also are more uniformly whitish. Scutæ 168; scutellæ 124 pairs only. All are from near Darjiling. Capt. W. S. Sherwill.

TR. DIPSAS, nobis, *n. s.* Form as in DIPSAS, slender, the neck much compressed. Head oval, flattened above; eyes large; the muzzle anterior to the orbits short: nostrils small, opening quite laterally; the nasal and rostral shields being vertical. General colour plumbeous above, obscurely spotted with black, and two barely traceable lines of whitish spots, more distinct towards and upon the neck where they increase in size towards the head. Occiput black, with an elongated white medial spot, and white V-like mark behind it, the apex of which is prolonged a little backward. A narrow black line from eye to eye passing in front towards the muzzle; and broader black streak posterior to the eye, continued as a series of longish oval spots on the sides of the neck bordering the scutæ. Some black marks also on the upper labials. Under-parts white throughout, with a row of minute black specks on either side. Rows of scales 17: scutæ 169; scutellæ 90 pairs. Specimen (young)  $21\frac{1}{2}$  in. long, of which tail  $4\frac{1}{4}$  in. Vicinity of Darjiling. Capt. W. S. Sherwill.

TR. PLATYCEPS, nobis, *n. s.* A beautiful species, with small and flat (but not broad) head, having much the aspect of a HERPETODRYAS.\* Young specimens generally shew the two white dots on the occipital shields, seen also in TR. UMBRATUS. Frontal and nasal shields vertical. Head and upper-parts deep green with slightly black-edged scales; the lower-parts bright yellow, with a coral-red stripe bordering the abdominal scutæ on each side, and strongly

\* Perhaps H. FRENATUS, Gray, (*Ann. M. N. H.*, Dec. 1853, p. 390,) may prove to be a variety.

tinging the sides of the body: subcaudal scutellæ variegated with greenish-dusky, and traces of the same about the throat. A white streak bordered with black passes backward from behind the eye and then upward to the occiput, but this would seem to disappear with age. Such is (or was) the colouring of two specimens respectively 27 in. long (of which tail 8 in.), and  $21\frac{1}{2}$  in. (of which tail  $6\frac{1}{2}$  in.). But another,  $21\frac{1}{2}$  in. long, is remarkable for having the chin and throat quite black, also the black markings of the dorsal scales more strongly developed than in the others, and the black marblings of the subcaudal scutellæ are more intense: the lateral coral-red band is merely indicated; and the white streak behind the eye is more strongly developed and continued forward to the muzzle. Number of rows of scales 19: scutæ 174, 86; scutellæ 89, 99 pairs. Another, from Asám, appears identical, but has 155 scutæ only; and in spirit appears of a dull olive-green colour, with two longitudinal pale ruddy dorsal stripes, much as in *TR. STOLATUS*, and the lower-parts are marked throughout with a black lateral spot on each scuta, seen also in the black-throated specimen. A small young example from the Khásya hills is similar to that from Asám. The three first described are from near Darjiling. Capt. W. S. Sherwill.

*ELAPS PERSONATUS*, nobis, *n. s.* Vertical plate about equal to the posterior frontals: supra-orbitals large, subquadrangular, elongate. Colour of upper-parts bright red in the adult, brown or reddish-brown in the young; marked throughout with from 22 to 28 narrow black semi-annuli, having slight whitish margins: under-parts dull yellowish-white, mottled throughout with black patches more or less developed: head black above, with whitish muzzle and broad cross band posterior to the eyes. Scales lustrous; 13 rows above: scutæ 196, 218; scutellæ 29, 34 pairs. Length of largest specimen  $24\frac{1}{4}$  in., of which tail  $2\frac{3}{4}$  in. From Asám.

*RANA ROBUSTA*, nobis, *n. s.* A moderately large Frog from Ceylon. Limbs exceedingly thick and massive; the third-digits fully webbed. Skin subgranulose, especially on the lower-parts. A slight transverse fold on the breast. Colour dusky above, with a large black patch on the back, another on the croup, and smaller lateral patches. Lower-parts yellowish-white, with a V-like mark

on the lower surface of the thigh in one of two specimens, both males. The same individual has dusky spots or imperfect streaks on the lower surface of the thigh, and its posterior surface is marked with longitudinal streaks of alternating black and yellowish-white. Digital membrane speckled with black. Length from snout to vent 3 in., and of hind-limb 4 in., of which the foot is half. Presented by Dr. E. F. Kelaart.

*LYMNODYTES MACULARIUS*, nobis, *n. s.* Differs from *L. ERYTHRÆUS* by the slightly but distinctly papillose skin of the back, and non-verrucose posterior surface of thighs; by its shorter and stouter limbs, and short anterior digits, the two outermost of which have their terminal disks smaller than in *L. ERYTHRÆUS*. There is a broad black band from nostril to loin, bordered above and below by narrow pale yellow streaks. Entire lower-parts spotless light yellow, as also the upper lip. A black spot at the shoulder, and line along the posterior surface of the fore-limb. One or more similar lines on the hind-limbs; the thighs beautifully mottled with black; and a black medial line along the back, which becomes double over the loins. Length of male from muzzle to vent  $2\frac{3}{8}$  in.; of hind-limb  $3\frac{3}{4}$  in.; of which the foot measures  $1\frac{3}{4}$  in. Hab. Ceylon. Dr. E. F. Kelaart.

*L. LIVIDUS*, nobis, *n. s.* A large species with short and remarkably fleshy thighs. Colour dusky above, paler and tinged with ruddy on the sides which are spotted with black. Chin, throat and breast, minutely variegated pale and dusky. Belly and thighs underneath, sullied whitish. Above, the thighs and shanks are paler than the back and tinged with ruddy, having several dusky cross-bands. Posterior surface of thigh smooth or non-verrucose. Length from muzzle to vent  $3\frac{1}{4}$  in., and of hind-leg  $4\frac{1}{2}$  in., of which the foot is  $2\frac{1}{4}$  in. From Colombo. Dr. E. F. Kelaart.

*MEGALOPHYRUS GIGAS*, nobis, *n. s.* (Edible Frog of Sikim, vide *J. A. S. XXII*, 557.) Adult male  $4\frac{1}{2}$  in. from snout to vent; hind-foot  $7\frac{1}{4}$  in., of which foot from heel  $3\frac{3}{8}$  in. Breadth of head 2 in. Interdigital membrane of the hind-foot well developed. Fore-limbs extremely thick, with the skin of their inner surface highly granulose. Upper-parts uniformly dull reddish or purplish black, a little marked with white on the posterior surface

of the thigh: below whitish, much suffused with dusky, and some irregular white spots or marblings along the rami of the lower jaw, and also on the sides of the body and along the sides of the limbs. What appear to be the young have the head proportionally less broad than in the adult, and the upper-parts have more of an olive tinge, and the under-parts are ochreous-yellow, mottled with reddish-brown. Hab. Sikim Himalaya. Capt. W. S. Sherwill.\*

*BOMBINATOR SIKIMMENSIS*, nobis, *n. s.* Size and general character of the European *B. IGNEUS*, (Laur.), but the hind-toes free or slightly webbed only at their extreme base. Male with four large subquadrilateral papillose callosities on the breast, and corresponding callosities on the upper surface of the innermost digits of each fore-foot. The tubercles of the head, body, and limbs, much more developed in males than in females. On the back are four irregular rows of large porous tubercles, and numerous minute tubercles without pores stud the rest of the upper-parts. On the hind-limbs small porous tubercles are very regularly disposed. Colour dull livid olive-green above, a little banded on the limbs; flame-coloured below, more or less marbled with dusky. Presented by Capt. W. S. Sherwill.

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In a collection of snakes from North Carolina presented to the Society by the Rev. F. Fitzgerald, through the American Consul, are two fine species of *HOMOLOPSIS*, which do not appear to be described either by Dr. Schlegel, or among the "extra-limitals" of New York by M. DeKay, or in other American lists to which we have access. They may, therefore, be here briefly characterized as probably new and undescribed.

*HOMOLOPSIS CRASSA*, nobis. Form thick and massive, with sub-tetragonal section; the head broad, subtrigonal, flat, much broader than the neck: body covered with 19 rows of broad, smooth and shining imbricated scales, which on the sides are much larger and broader than upon the back; eyes placed very forward: a single anterior frontal, and series of 7 upper and 9 lower labials. Teeth very minute. Colour black above, yellowish-white below; the sides

\* Two other forms affined to *MEGALOPHRYS*, and like it and *BOMBINATOR*, exhibiting no external *tympana*, also sent from the Sikim Himalaya by Capt. Sherwill, we have at present no means of classifying, for want of books of reference.

transversely banded with about 75 bands in all, the black of the back descending and the yellowish-white of the lower parts ascending alternately, and the former continued irregularly across the lower-parts where the two colours are about equally distributed. Head black, irregularly variegated with yellowish-white; the rostral and labials of the latter hue, and all except the last three inferior labials having a medial black spot. Most of the shields of the chin and throat are also thus spotted. Scutæ 200; scutellæ 37 pairs. Length of specimen 4 ft., of which tail 4 in. Head  $1\frac{3}{8}$  in. in greatest breadth.

**H. PARVICEPS, nobis.** Form moderately thick, attenuating towards the head, which is small and not broader than the neck; body covered with 19 rows of smooth shining imbricated scales, which on the sides are much broader than upon the back; tail with only 8 rows of hexagonal scales besides the scutellæ. Two anterior frontals, half the size of the posterior. Teeth minute. Colour black above, yellowish-white beneath, the latter extending over  $2\frac{1}{2}$  rows of scales on either side. Three yellowish-white dorsal stripes, one median extending from the occiput to the middle of the tail, the others lateral and occupying part of the 5th and 6th rows of scales. On the lower parts, also, two lines are formed of broad black spots, one on either side of each scuta, and along the middle of the body is a third and median row. The shields of the head are margined and variegated with yellowish-white, and each labial except the posterior three lower are whitish having a large black spot. Scutæ 161; scutellæ 45. Length of specimen  $2\frac{1}{2}$  ft., of which tail  $5\frac{1}{2}$  in.

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**ADDENDA.** Since the former part of the foregoing paper was published, the author has had an opportunity of shewing the Society's specimens of Burmese Tortoises to the Rev. J. Mason of Maulmein, who has long devoted considerable attention to the zoology of the Tenasserim provinces. This gentleman immediately recognised the *TESTUDO MEGALOPUS* (*J. A. S.* XXII, 640,) as the species with which he was most familiar in Burma: at once distinguishing it from the Indian *T. STELLATA*: and as his judgment is worthy of confidence, we may pretty safely now rank *T. MEGALOPUS* as a third Burmese species of the genus.

At about the same date of publication, appeared a paper by Dr. Gray on some undescribed species of reptiles collected by Dr. Joseph Hooker in the Khásia mountains and Sikim Himalaya. Among them, his genus *DOPASIA* approximates my *OPHISEPS* (*J. A. S.* XXII, 655), but is evidently distinct; the position of the vent in *DOPASIA* is not stated. *PARIAS MACULATA*, Gray, is identical with *TRIGONOCEPHALUS NILGIRIENSIS*, Jerdon, *J. A. S.* XXII, 524, as we find upon comparison of a fine Asámese specimen with the descriptions by Messrs. Jerdon and Gray, and with a coloured figure sent by Mr. Jerdon. Mr. Gray does not give the number of rows of scales or of abdominal or caudal plates. Mr. Jerdon writes—"23 rows of earinated scales. Scutæ 142; scutellæ 36." The Asámese specimen has 23 rows of the first; scutæ 143; scutellæ about 36 pairs. Length  $14\frac{1}{2}$  in., of which tail barely 2 in. Colour pale, variegated with dark blackish-edged patches on the upper parts, forming irregular transverse bands, more or less divided and the halves alternating; below whitish, the plates speckled laterally with dusky; chin and sides of throat blackish; a whitish band proceeding backward from the eye, another from cleft of mouth, and between them a black space. This Asámese specimen has an elongated black occipital spot, succeeded by two lateral streaks which unite posteriorly; a somewhat different arrangement from that in Mr. Jerdon's drawing, and again different from that exhibited in an example from the vicinity of Darjiling, which also has the under-parts much more mottled with black; but all are evidently identical in species.

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PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR APRIL, 1854.

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At the usual monthly meeting of the Society held on the 6th instant,

Sir J. W. Colville, Knight, President, in the chair.

The minutes of the last month's proceedings were read and confirmed.

Presentations were received—

1. From Lady Elliot, a teak wood cabinet for coins, and copy of a Volume entitled 'Appendix to the Arabs in Sindh' printed for private circulation by the late Sir H. Elliot.

2. From J. Cockburn, Esq. Superintendent Barrackpore Park, Carcass of a Samber Deer. *Elaphus*.

3. From the Society of Natural Sciences of Cherbourg, through the Foreign Office, the Memoirs of the Society, Vol. I. part 2.

4. From Mons. Bleeker, President, and Mons. G. A. Dehaage, Secretary of the Society of Sciences of Netherlands India, Vol. I. N. S. of the Transactions of the Society.

5. From Mr. Grote, on the part of Mr. Robinson, a Collection of Snakes from Assam.

6. 3 Indo-Sythic (*Kadphises*) gold coins found near the Black Pagoda, in the Pooree District, and sent for inspection by the Hon'ble E. Drummond, were laid on the table.

The following gentlemen were named for ballot at the next meeting.

J. J. Clarke, Esq. Civil Assistant Surgeon Hameerpore,—proposed by Mr. Freeling and seconded by Mr. Grote.

F. Schiller, Esq. Merchant, Calcutta,—proposed by Dr. Sprenger and seconded by Mr. Grote.

J. H. Campbell, Esq. Merchant, Calcutta,—proposed by Dr. Sprenger and seconded by the President.

The chairman on behalf of the Council communicated to the meet-

ing the intelligence of Dr. J. B. Mill's death, and proposed the following resolution which was carried unanimously. *Resolved*, that the Society receive with much regret the intelligence of the death of the Rev. Dr. Mill, who was formerly, for many years, one of its Vice-Presidents, and, in point of Oriental learning, one of its most distinguished ornaments.

Read Letters—

1. From Bábu Rádánáth Sikdár, communicating Abstracts of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of January, 1854.

2. From W. Muir, Esq. enclosing copy of the Meteorological Register kept at the Office of the Secretary to the Government of the North Western Provinces, Agra, for the month of January, 1854.

3. From Mons. A Schrötter, Secretary General of the Imperial Academy of Vienna, acknowledging receipt of the Journal and Researches, and requesting to be furnished with other volumes of those works.

4. Mr. E. C. Bayley exhibited to the meeting an interesting collection of ancient coins, which he had brought with him from Kungra.

5. The Librarian and the Curator of the Zoological Department submitted their usual monthly reports. The latter pointed out that Mr. Robinson's collection of snakes contained several species new to the Society's Museum, and some which had not yet been described.\*

LIBRARY.

The following books have been added to the library since the last meeting.

*Presented.*

Memoires de la Société des Sciences Naturelles de Cherbourg, 1 er vol. 2 me Livraison.—BY THE SOCIETY.

Advantages of Gas in Private Houses in Calcutta, with a Description of the Manufacture of Coal-gas.—BY CAPT. JAMES.

The Indian Annals of Medical Science or Half-yearly Journal of Practical Medicine and Surgery, No. 1.—BY THE EDITOR.

East India Company's Records founded on Official Documents, shewing a view of the Past and Present State of the British Possessions in India.—By Cesar Morcau. Lithograph.—BY THE AUTHOR.

Natuurkundig Tijdschrift voor Nederlandsch Indie, Deel. IV. and afle-

\* Vide p. 287 et seqs, ante.

verings 1 to 4, of Deel V.—BY THE SOCIETY OF NATURAL SCIENCES OF NETHERLAND'S INDIA.

Report of the Calcutta Public Library for 1853.—BY THE CURATORS OF THE LIBRARY.

Selections from the Public Correspondence of the Punjab Administration, No. VI. 4 copies.—BY THE CHIEF COMMISSIONER OF THE PUNJAB.

Report on the Administration of the Salt Department of the Revenue of Bengal, for the year 1852-53.—BY THE GOVERNMENT OF BENGAL.

The Upadeshak, for March and April, 1854.—BY THE EDITOR.

The Calcutta Christian Observer, for March and April, 1854.—BY THE EDITORS.

The Oriental Baptist, Nos. 87, 88.—BY THE EDITOR.

The Oriental Christian Spectator, for February, 1854.—BY THE EDITOR.

The Citizen, from January to March, 1854.—BY THE EDITOR.

The Bibidhārtha Saṅgraha, No. 25.—BY THE EDITOR.

*Purchased.*

The Report of the British Association, for 1846.

Comptes Rendus, Nos. 23 to 26, for December, 1853.

Journal des Savants, for December, 1853.

The Annals and Magazine of Natural History, for January, 1854.

*Exchanged.*

Jameson's Journal, No. III.

The London, Edinburgh and Dublin Philosophical Magazine, No. 42.

RA'JENDRALA'L MITTRA.

*April 5th, 1854.*

FOR MAY, 1854.

The usual monthly meeting of the Society was held on the 2nd Instant at half-past 8 P. M.

Sir James Colville, Kt., President, in the chair.

The minutes of the last month's proceedings were read and confirmed, and the accounts and vouchers for the months of January and February submitted to the meeting.

A copy of Dr. Sprenger's Catalogue of the Oudh Libraries, Vol. 1, received from the Government of Bengal, was laid on the table.

Sháh Kabirudín laid on the table, a beautifully executed specimen of Persian Calligraphy by a Mauluvi of the Sasseram Madrasah.

The following gentlemen duly proposed and seconded at the last meeting were balloted for, and elected ordinary members.

Dr. J. J. Clarke, Hameerpore.

F. Schiller, Esq. Calcutta.

H. P. A. B. Riddell, Esq. B. C. S. was named for ballot at the next meeting, proposed by the Hon'ble Col. Low and seconded by the President.

Recorded a note from Major J. S. Banks, wishing to withdraw from the Society.

The Council submitted the following recommendations—

1st. That the offer of Rev. F. Mason, to print the text and translation of a Páli Grammar be accepted. The work to be published as proposed by the Secretaries, viz. an Introduction with a translation of the Grammar; in London, and the Páli text hereafter.

2d. That the estimated expense for completing the Society's collection of the Puráṇas, be sanctioned and charged to the Oriental Fund.

3d. That the present Editors of the *Içabah* be requested to commence with the publication of the latter portion of the work, to be brought out by Hajee Mohammed Hosain under the precautions necessary to preserve uniformity in the series, and that his offer to become the Society's Agent be also accepted.

4. That the Society subscribe for 5 copies of Pandit Premchand's edition of the *Rághava Pándavíya*, the cost being charged to the Oriental Fund.

Resolved that the recommendations of the Council be adopted.

Read Letters—

1. From Bábu Rádhánáth Sikdár enclosing Abstracts of Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of February, 1854.

From W. Muir, Esq. Secretary to the Government of the North Western Provinces, enclosing Meteorological Register kept at the Secretariat Office, Agra, for the month of March last.

From R. Clarke, Esq. Honorary Secretary to the Royal Asiatic Society of London, acknowledging the receipt of the last 4 Nos. of the *Bibliotheca Indica*.

The Curator of the Zoological Department and the Librarian having submitted their usual reports, the meeting adjourned.

LIBRARY.

The following additions have been made to the Library since the last meeting.

*Presented.*

Das Arabische Hohe lied der Liebe, das ist Ibnol Fáridhs Tajjet in Text und Uebersetzung. Zum ersten male zur ersten säcular-feier der K. K. Orientalischen Akademie. Herausgegeben von Hammar Purgstall. Wien 1854, royal 8vo.—BY THE AUTHOR.

Hony Háe kin Chin or the Law of Storms in Chinese, by D. J. McGowan, M. D. Ningpo, 1853.—BY THE AUTHOR.

Algemeen Verslag der Werkzaamheden van de Natuurkundige Vereeniging in Nederlandsch Indie. Door Dr. P. Bleeker, Batavia, 1854, 8vo. Pamphlet.—BY THE AUTHOR.

Natuur-kundige Tijdschrift voor Nederlandsche Indie, Deel V. aflevering Ven VI.—BY THE EDITOR.

Nieuwe Tien tallen Diagnostische Beschrijvingen van Nieuwe of Weinig bekende Vischsoorten van Sumatra, Door Dr. P. Bleeker.—BY THE AUTHOR.

Bij-drage tot de kennis der Ichtheologische Fauna van Halmaheira, Door Dr. Bleeker. Pamphlet.—BY THE AUTHOR.

Discours de M. Garcin de Tassy, a l'Ouverture de son cours d'Hindoustani, a l'Ecole Impériale et spéciale des langues Orientales Vivantes, pres la Bibliotheque Impériale, le 29 November 1853.—BY THE AUTHOR.

Notices of the Meetings of the members of the Royal Institution of Great Britain, Part III.—BY THE INSTITUTION.

Annual Report of the Royal Institution of Great Britain for the year 1852.—BY THE SAME.

Proceedings of the Royal Irish Academy Vol. V.—BY THE ACADEMY.

Astronomical Observations made at the Observatory of Cambridge by the Rev. James Challis, Vol. XVII.—BY THE SYNDICATE OF THE CAMBRIDGE OBSERVATORY.

The Quarterly Journal of the Geological Society. Vol. X. Part I.—BY THE SOCIETY.

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RA'JENDEBAL'L MITTRA.

*May 2nd, 1854.*

*Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of February, 1854.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

Daily Means, &c. of the observations and of the hygrometrical elements dependent thereon.

| Date. | Mean Height of the Barometer at 32° Falt. | Range of the Barometer during the day. |         |         | Mean Dry Bulb Thermometer. | Range of the Temperature during the day. |      |       |
|-------|---|--|---------|---------|----------------------------|--|------|-------|
|       |   | Max.                                   | Min.    | Diff.   |                            | Max.                                     | Min. | Diff. |
|       | Inches.                                   | Inches.                                | Inches. | Inches. | o                          | o  | o    | o     |
| 1     | 29.908                                    | 29.995                                 | 29.819  | 0.176   | 72.2                       | 81.3                                     | 65.5 | 15.8  |
| 2     | .851                                      | .924                                   | .802    | .122    | 70.1                       | 75.0                                     | 66.6 | 8.4   |
| 3     | .912                                      | .985                                   | .841    | .144    | 66.6                       | 73.8                                     | 60.2 | 13.6  |
| 4     | .999                                      | 30.087                                 | .946    | .141    | 63.9                       | 74.0                                     | 55.1 | 18.9  |
| 5     | <i>Sunday.</i>                            |  |         |         |                            |  |      |       |
| 6     | .930                                      | .003                                   | .871    | .132    | 71.5                       | 80.2                                     | 66.2 | 14.0  |
| 7     | 30.018                                    | .113                                   | .964    | .149    | 68.1                       | 77.0                                     | 59.0 | 18.0  |
| 8     | .009                                      | .093                                   | .941    | .152    | 66.5                       | 76.8                                     | 57.0 | 19.8  |
| 9     | 29.943                                    | .031                                   | .877    | .154    | 67.4                       | 78.4                                     | 58.3 | 20.1  |
| 10    | .950                                      | .032                                   | .899    | .133    | 68.7                       | 79.9                                     | 59.2 | 20.7  |
| 11    | .943                                      | .031                                   | .883    | .148    | 69.1                       | 77.2                                     | 62.6 | 14.6  |
| 12    | <i>Sunday.</i>                            |  |         |         |                            |  |      |       |
| 13    | .935                                      | .033                                   | .873    | .160    | 68.3                       | 71.2                                     | 65.4 | 5.8   |
| 14    | .909                                      | 29.969                                 | .836    | .133    | 64.7                       | 67.4                                     | 63.0 | 4.4   |
| 15    | .960                                      | 30.037                                 | .905    | .132    | 67.1                       | 75.6                                     | 61.6 | 14.0  |
| 16    | 30.078                                    | .165                                   | 30.006  | .159    | 68.3                       | 78.0                                     | 59.4 | 18.6  |
| 17    | .148                                      | .242                                   | .088    | .154    | 69.5                       | 80.7                                     | 60.0 | 20.7  |
| 18    | .121                                      | .208                                   | .046    | .162    | 71.1                       | 82.4                                     | 61.2 | 21.2  |
| 19    | <i>Sunday.</i>                            |  |         |         |                            |  |      |       |
| 20    | .056                                      | .138                                   | 29.994  | .144    | 73.2                       | 83.6                                     | 62.8 | 20.8  |
| 21    | .010                                      | .105                                   | .941    | .164    | 73.6                       | 84.9                                     | 62.5 | 22.4  |
| 22    | .019                                      | .120                                   | .962    | .158    | 74.5                       | 85.6                                     | 65.4 | 20.2  |
| 23    | 29.989                                    | .073                                   | .910    | .163    | 76.3                       | 87.8                                     | 66.1 | 21.7  |
| 24    | .958                                      | .032                                   | .871    | .161    | 76.7                       | 85.8                                     | 68.5 | 17.3  |
| 25    | .929                                      | .016                                   | .878    | .138    | 76.9                       | 86.2                                     | 68.6 | 17.6  |
| 26    | <i>Sunday.</i>                            |  |         |         |                            |  |      |       |
| 27    | .797                                      | 29.878                                 | .741    | .137    | 73.9                       | 82.7                                     | 67.2 | 15.5  |
| 28    | .808                                      | .882                                   | .761    | .121    | 76.4                       | 86.5                                     | 67.4 | 19.1  |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta, in the  
month of February, 1854.*

Daily Means, &c. of the observations and of the hygrometrical elements  
dependent thereon.—(Continued.)

| Date. | Mean Wet Bulb Ther-<br>mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew<br>Point. | Mean Elastic force of<br>Vapour. | Mean Weight of Vapour<br>in a cubic foot of air. | Additional weight of Va-<br>pour required for com-<br>plete saturation. | Mean degree of Humi-<br>dity, complete satura-<br>tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|---|
|       | o                               | o                   | o                   | o                            | Inches.                          | T. gr.   | T. gr.  |   |
| 1     | 68.8                            | 3.5                 | 67.0                | 5.2                          | 0.660                            | 7.24   | 1.44  | 0.852   |
| 2     | 67.4                            | 2.7                 | 65.9                | 4.2                          | .637                             | 7.01   | 1.03  | .876  |
| 3     | 61.9                            | 4.7                 | 59.3                | 7.4                          | .512                             | 5.67   | 1.58  | .795  |
| 4     | 59.3                            | 4.6                 | 56.5                | 7.3                          | .468                             | 5.20   | 1.54  | .792  |
| 5     | <i>Sunday.</i>                  |                     |                     |                              |                                  |  |   |   |
| 6     | 67.4                            | 4.1                 | 65.2                | 6.3                          | .622                             | 6.83   | 1.63  | .826  |
| 7     | 62.7                            | 5.4                 | 59.6                | 8.5                          | .521                             | 5.75   | 1.91  | .762  |
| 8     | 60.9                            | 5.6                 | 57.6                | 8.9                          | .485                             | 5.37   | 1.96  | .753  |
| 9     | 62.6                            | 4.8                 | 59.8                | 7.5                          | .524                             | 5.79   | 1.76  | .787  |
| 10    | 65.0                            | 3.7                 | 63.0                | 5.7                          | .582                             | 6.41   | 1.47  | .838  |
| 11    | 66.8                            | 2.3                 | 65.6                | 3.6                          | .631                             | 6.95   | 0.92  | .891  |
| 12    | <i>Sunday.</i>                  |                     |                     |                              |                                  |  |   |   |
| 13    | 66.4                            | 1.9                 | 65.3                | 2.9                          | .625                             | 6.90   | 0.70  | .909  |
| 14    | 63.6                            | 1.1                 | 62.9                | 1.8                          | .576                             | 6.41   | 0.39  | .943  |
| 15    | 65.1                            | 2.0                 | 64.0                | 3.1                          | .599                             | 6.63   | 0.76  | .904  |
| 16    | 65.2                            | 3.1                 | 63.5                | 4.8                          | .591                             | 6.52   | 1.22  | .861  |
| 17    | 65.6                            | 3.9                 | 63.4                | 6.1                          | .590                             | 6.49   | 1.56  | .827  |
| 18    | 66.9                            | 4.2                 | 64.7                | 6.4                          | .615                             | 6.74   | 1.72  | .821  |
| 19    | <i>Sunday.</i>                  |                     |                     |                              |                                  |  |   |   |
| 20    | 68.7                            | 4.5                 | 66.4                | 6.8                          | .649                             | 7.09   | 1.90  | .811  |
| 21    | 68.8                            | 4.8                 | 66.4                | 7.2                          | .649                             | 7.09   | 2.03  | .800  |
| 22    | 69.7                            | 4.8                 | 67.2                | 7.2                          | .667                             | 7.27   | 2.08  | .802  |
| 23    | 71.3                            | 5.0                 | 68.7                | 7.6                          | .701                             | 7.61   | 2.29  | .790  |
| 24    | 72.3                            | 4.4                 | 70.1                | 6.6                          | .733                             | 7.95   | 1.99  | .811  |
| 25    | 71.6                            | 5.2                 | 69.0                | 7.8                          | .706                             | 7.66   | 2.33  | .786  |
| 26    | <i>Sunday.</i>                  |                     |                     |                              |                                  |  |   |   |
| 27    | 70.7                            | 3.3                 | 69.0                | 5.0                          | .706                             | 7.70   | 1.44  | .856  |
| 28    | 71.4                            | 4.9                 | 68.9                | 7.4                          | .704                             | 7.65   | 2.25  | .799  |



Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of February, 1854.

Hourly Means, &c. of the observations and of the hygrometrical elements dependent thereon.—(Continued.)

| Hour.      | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer for each hour during the month. |         |         | Mean Dry Bulb Thermometer. | Range of the Temperature for each hour during the month. |      |       |      |
|------------|---|--|---------|---------|----------------------------|--|------|-------|------|
|            |   | Max.   | Min.    | Diff.   |                            | Max.   | Min. | Diff. |      |
|            | Inches.                                   | Inches.  | Inches. | Inches. | o                          | o  | o    | o     |      |
| Mid-night. | } 29.967                                  | 30.161   | 29.802  | 0.359   | 66.8                       | 73.6   | 59.1 | 14.5  |      |
| 1          |   | .957   | .146    | .794    | .352                       | 66.0   | 72.5 | 58.2  | 14.3 |
| 2          |   | .950   | .141    | .784    | .357                       | 65.6   | 72.2 | 57.6  | 14.6 |
| 3          |   | .937   | .128    | .771    | .357                       | 64.9   | 71.0 | 56.8  | 14.2 |
| 4          |   | .933   | .115    | .759    | .356                       | 64.4   | 69.7 | 56.1  | 13.6 |
| 5          |   | .941   | .127    | .754    | .373                       | 64.0   | 69.2 | 55.9  | 13.3 |
| 6          |   | .956   | .143    | .763    | .380                       | 63.5   | 68.6 | 55.1  | 13.5 |
| 7          |   | .984   | .172    | .800    | .372                       | 63.2   | 68.7 | 55.1  | 13.6 |
| 8          |   | 30.012   | .205    | .823    | .382                       | 65.6   | 72.4 | 57.7  | 14.7 |
| 9          |   | .036   | .232    | .860    | .372                       | 69.3   | 76.6 | 61.4  | 15.2 |
| 10         |   | .048   | .242    | .878    | .364                       | 72.3   | 79.0 | 66.3  | 12.7 |
| 11         | .037                                      | .228   | .869    | .359    | 74.4                       | 81.3   | 67.4 | 13.9  |      |
| Noon.      | .012                                      | .202   | .852    | .350    | 76.5                       | 84.2   | 66.4 | 17.8  |      |
| 1          | 29.977                                    | .167   | .812    | .355    | 78.1                       | 85.4   | 66.1 | 19.3  |      |
| 2          | .943                                      | .129   | .785    | .344    | 78.7                       | 87.0   | 66.0 | 21.0  |      |
| 3          | .923                                      | .106   | .766    | .340    | 79.3                       | 87.8   | 65.6 | 22.2  |      |
| 4          | .912                                      | .095   | .751    | .344    | 79.1                       | 87.4   | 64.8 | 22.6  |      |
| 5          | .911                                      | .089   | .741    | .348    | 77.9                       | 85.8   | 64.2 | 21.6  |      |
| 6          | .920                                      | .088   | .742    | .346    | 75.2                       | 83.7   | 64.2 | 19.5  |      |
| 7          | .935                                      | .107   | .753    | .354    | 72.8                       | 80.1   | 63.8 | 16.3  |      |
| 8          | .953                                      | .133   | .774    | .359    | 71.1                       | 78.4   | 63.6 | 14.8  |      |
| 9          | .973                                      | .159   | .794    | .365    | 69.7                       | 77.4   | 62.8 | 14.6  |      |
| 10         | .982                                      | .168   | .812    | .356    | 68.7                       | 76.8   | 61.6 | 15.2  |      |
| 11         | .981                                      | .176   | .806    | .370    | 67.6                       | 75.0   | 60.2 | 14.8  |      |

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taken at the Surveyor General's Office, Calcutta, in the  
month of February, 1854.*

Hourly Means, &c. of the observations and of the hygrometrical elements  
dependent thereon.—(Continued.)

| Hour.          | Mean Wet Bulb Ther-<br>mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew<br>Point. | Mean Elastic force of<br>Vapour. | Mean Weight of Vapour<br>in a cubic foot of air. | Additional weight of Va-<br>pour required for com-<br>plete saturation. | Mean degree of Humi-<br>dity, complete satura-<br>tion being unity. |      |
|----------------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|---|------|
|                | o                               | o                   | o                   | o                            | Inches.                          | T. gr.   | T. gr.  |   |      |
| Mid-<br>night. | } 64.7                          | 2.0                 | 63.5                | 3.2                          | 0.592                            | 6.55   | 0.73  | 0.900   |      |
| 1              |                                 | 64.2                | 1.8                 | 63.1                         | 2.9                              | .584   | .47   | .65   | .910 |
| 2              |                                 | 63.8                | 1.7                 | 62.7                         | 2.8                              | .577   | .40   | .62   | .911 |
| 3              |                                 | 63.2                | 1.6                 | 62.2                         | 2.7                              | .567   | .30   | .58   | .915 |
| 4              |                                 | 62.9                | 1.5                 | 61.9                         | 2.5                              | .562   | .25   | .53   | .922 |
| 5              |                                 | 62.5                | 1.5                 | 61.5                         | 2.5                              | .554   | .16   | .52   | .922 |
| 6              |                                 | 62.0                | 1.5                 | 61.0                         | 2.5                              | .546   | .08   | .50   | .923 |
| 7              |                                 | 61.9                | 1.2                 | 61.1                         | 2.1                              | .547   | .10   | .42   | .934 |
| 8              |                                 | 63.8                | 1.8                 | 62.6                         | 3.0                              | .576   | .39   | .66   | .906 |
| 9              |                                 | 66.0                | 3.4                 | 64.1                         | 5.2                              | .606   | .67   | 1.23  | .846 |
| 10             |                                 | 67.6                | 4.7                 | 65.1                         | 7.2                              | .625   | .84   | 1.80  | .794 |
| 11             |                                 | 68.4                | 6.0                 | 65.4                         | 9.0                              | .632   | .89   | 2.33  | .750 |
| Noon.          | 69.3                            | 7.2                 | 65.6                | 10.8                         | .637                             | .91  | 2.93  | .709  |      |
| 1              | 70.4                            | 7.7                 | 66.6                | 11.5                         | .656                             | 7.10   | 3.23  | .695  |      |
| 2              | 70.9                            | 7.8                 | 67.0                | 11.7                         | .665                             | 7.19   | 3.35  | .693  |      |
| 3              | 71.3                            | 7.9                 | 67.4                | 11.9                         | .673                             | 7.26   | 3.46  | .688  |      |
| 4              | 71.0                            | 8.1                 | 67.0                | 12.1                         | .664                             | 7.16   | 3.48  | .682  |      |
| 5              | 70.6                            | 7.2                 | 67.0                | 10.9                         | .665                             | 7.20   | 3.07  | .709  |      |
| 6              | 70.0                            | 5.2                 | 67.4                | 7.8                          | .673                             | 7.32   | 2.15  | .778  |      |
| 7              | 68.9                            | 3.9                 | 66.8                | 6.0                          | .661                             | 7.22   | 1.57  | .824  |      |
| 8              | 67.8                            | 3.2                 | 66.1                | 4.9                          | .645                             | 7.08   | 1.25  | .852  |      |
| 9              | 66.9                            | 2.8                 | 65.3                | 4.3                          | .629                             | 6.93   | 1.05  | .868  |      |
| 10             | 66.2                            | 2.5                 | 64.8                | 4.0                          | .618                             | 6.81   | 0.95  | .879  |      |
| 11             | 65.3                            | 2.3                 | 63.9                | 3.7                          | .600                             | 6.63   | 0.86  | .886  |      |

Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta, in the  
month of February, 1854.

Solar radiation, Weather, &c.

| Date. | Max. Solar radiation. | Rain. | Prevailing direction of the Wind. | General aspect of the Sky.  |
|-------|-----------------------|-------|-----------------------------------|---|
|       | o                     | Inc.  |                                   |   |
| 1     | 128.9                 | ..    | S. or S. W.                       | Cloudless nearly the whole day.   |
| 2     | 121.0                 | ..    | S. or N. or N. E.                 | Cloudy.   |
| 3     | 126.0                 | ..    | S. or N. W.                       | Cloudy till 2 P. M. cloudless afterwards.   |
| 4     | 125.0                 | ..    | N. W. or S. W.                    | Cloudless.  |
| 5     | <i>Sunday.</i>        |       |                                   |   |
| 6     | 130.0                 | ..    | S or N. W. or N. E.               | Cloudy till 4 P. M. cloudless afterwards.   |
| 7     | 128.0                 | ..    | S. W. or N. or N. W.              | Cloudless.  |
| 8     | 128.2                 | ..    | N. W.                             | Ditto.  |
| 9     | 129.0                 | ..    | W. or S. W.                       | Ditto.  |
| 10    | 133.0                 | ..    | Calm or S. W.                     | Cloudless till 10 A. M. scattered $\vee$ -i till 5 P. M. cloudless afterwards, also dense fog between 6 and 9 A. M. |
| 11    | 121.0                 | 0.16  | S. S. E.                          | Cloudy, also raining between 1 and 2 P. M.  |
| 12    | <i>Sunday.</i>        |       |                                   |   |
| 13    | ....                  | ..    | S. or N.                          | Scattered $\vee$ i and $\vee$ -i till 7 A. M. cloudy afterwards.  |
| 14    | ....                  | 0.41  | N. or N. W. or N. E.              | Cloudy and raining from noon to 3 P. M. also drizzling afterwards.  |
| 15    | 134.0                 | 0.12  | W. or N. or S. W.                 | Cloudy till 5 P. M. also drizzling between midnight and 4 A. M. cloudless after 5 P. M.                             |
| 16    | 131.0                 | ..    |                                   | Cloudless.  |
| 17    | 134.0                 | ..    | S. W. or N. W.                    | Ditto.  |
| 18    | 136.8                 | ..    | N. W.                             | Ditto.  |
| 19    | <i>Sunday.</i>        |       |                                   |   |
| 20    | 135.2                 | ..    | N. W.                             | Cloudless.  |
| 21    | 132.5                 | ..    | S. or W. S. W.                    | Ditto.  |
| 22    | 136.0                 | ..    | N. W. or S.                       | Cloudless till 6 A. M. scattered $\vee$ i and $\vee$ -i or $\vee$ -i till 3 P. M. cloudless afterwards.             |
| 23    | 134.0                 | ..    | N. W.                             | Cloudless till 3 A. M. scattered $\vee$ i till 7 P. M. cloudless afterwards.  |
| 24    | 125.0                 | ..    | S.                                | Cloudless till 5 A. M. cloudy afterwards.   |
| 25    | 136.3                 | ..    | Calm or N.                        | Cloudless.  |
| 26    | <i>Sunday.</i>        |       |                                   |   |
| 27    | 134.8                 | ..    | N. W.                             | Nearly cloudless.   |
| 28    | 135.0                 | ..    | Calm or S. S. W. or W.            | Cloudless.  |

$\vee$ i Cirri,  $\vee$ i cumuli,  $\text{—}$ i strati,  $\vee$ -i cirrocumuli,  $\vee$ -i cirro strati,  $\text{—}$ i cumulo strati,  $\vee$ -i Nimbi.

*Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of March, 1854.*

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |                        | Aspect of the Sky.   |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|----------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Direction of the Wind. |                      |
| 1     | 29.391     | 76.0         | 76.5    | 56.6      | ..                   | ..       | W.                     | Clear                |
| 2     | 29.455     | 73.0         | 74.5    | 64.9      | ..                   | ..       | N. W.                  | Ditto                |
| 3     | 29.419     | 72.0         | 72.8    | 62.1      | ..                   | ..       | S.                     | Ditto                |
| 4     | 29.373     | 77.4         | 78.6    | 61.0      | ..                   | ..       | S. E.                  | Ditto                |
| 5     | 29.389     | 73.0         | 73.6    | 61.0      | ..                   | ..       | E.                     | Ditto                |
| 6     | 29.547     | 71.8         | 72.3    | 54.4      | ..                   | ..       | N. W.                  | Hazy                 |
| 7     | 29.573     | 66.5         | 67.5    | 54.0      | ..                   | ..       | N. W.                  | Clear                |
| 8     | 29.491     | 66.0         | 68.0    | 52.0      | ..                   | ..       | N. W.                  | Hazy                 |
| 9     | 29.559     | 66.9         | 68.0    | 55.6      | ..                   | ..       | W.                     | Clear                |
| 10    | 29.599     | 68.0         | 69.2    | 52.8      | ..                   | ..       | W.                     | Ditto                |
| 11    | 29.571     | 73.0         | 74.3    | 57.2      | ..                   | ..       | N. W.                  | ∪ scattered          |
| 12    | 29.507     | 76.8         | 77.2    | 60.0      | ..                   | ..       | W.                     | Clear                |
| 13    | 29.479     | 79.8         | 82.0    | 63.0      | ..                   | ..       | W.                     | Ditto                |
| 14    | 29.515     | 77.0         | 77.0    | 65.0      | ..                   | ..       | N.                     | Ditto                |
| 15    | 29.512     | 73.0         | 73.2    | 53.0      | ..                   | ..       | N. W.                  | Ditto                |
| 16    | 29.497     | 72.5         | 74.5    | 54.0      | ..                   | ..       | N. W.                  | Clear                |
| 17    | 29.539     | 72.9         | 75.4    | 65.5      | ..                   | ..       | E.                     | Ditto                |
| 18    | 29.539     | 72.5         | 73.8    | 55.0      | ..                   | ..       | N. W.                  | ∪ very few scattered |
| 19    | 29.567     | 74.0         | 74.8    | 56.0      | ..                   | ..       | W.                     | ∪ scattered          |
| 20    | 29.553     | 79.0         | 81.0    | 59.0      | ..                   | ..       | E.                     | ∪ ditto              |
| 21    | 29.553     | 81.0         | 83.4    | 60.5      | ..                   | ..       | E.                     | Ditto                |
| 22    | 29.585     | 81.0         | 83.5    | 62.0      | ..                   | ..       | N.                     | Ditto                |
| 23    | 29.555     | 82.5         | 83.5    | 61.8      | ..                   | ..       | N.                     | Hazy                 |
| 24    | 29.563     | 82.9         | 84.4    | 65.0      | ..                   | ..       | S. E.                  | ∪ scattered          |
| 25    | 29.595     | 78.3         | 78.3    | 62.0      | ..                   | ..       | N. W.                  | ∪ all over           |
| 26    | 29.569     | 80.2         | 80.8    | 60.0      | ..                   | ..       | N.                     | Clear                |
| 27    | 29.529     | 83.4         | 84.9    | 62.8      | ..                   | ..       | N.                     | Ditto                |
| 28    | 29.479     | 81.0         | 82.0    | 64.7      | ..                   | ..       | N. W.                  | Ditto                |
| 29    | 29.433     | 84.0         | 86.0    | 63.3      | ..                   | ..       | N. W.                  | Ditto                |
| 30    | 29.409     | 83.9         | 86.5    | 63.5      | ..                   | ..       | N. W.                  | Ditto                |
| 31    | 29.415     | 88.6         | 88.8    | 64.5      | ..                   | ..       | W.                     | Ditto                |
| Mean. | 29.508     | 76.4         | 77.6    | 59.4      | ..                   | ..       | ..                     | .....                |

Note. The dry bulb and Maximum Register do not agree, the former always reads more than the latter, the average difference is 1.6 at times it is far greater.

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of March, 1854.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |                        | Aspect of the Sky.   |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|----------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Direction of the Wind. |                      |
| 1     | 29.359     | 81.0         | 81.5    | 60.0      | ..                   | ..       | W.                     | Clear                |
| 2     | 29.425     | 78.0         | 79.0    | 64.9      | ..                   | ..       | N. W.                  | Ditto                |
| 3     | 29.367     | 78.7         | 79.9    | 59.7      | ..                   | ..       | S. W.                  | Ditto                |
| 4     | 29.345     | 82.0         | 83.5    | 64.6      | ..                   | ..       | S. E.                  | Ditto                |
| 5     | 29.357     | 76.8         | 77.1    | 64.0      | ..                   | ..       | E.                     | ∩ a few scattered    |
| 6     | 29.529     | 75.0         | 75.3    | 55.5      | ..                   | ..       | N. W.                  | Hazy                 |
| 7     | 29.547     | 70.3         | 71.2    | 51.0      | ..                   | ..       | N. W.                  | Clear                |
| 8     | 29.471     | 74.0         | 74.3    | 54.5      | ..                   | ..       | N. W.                  | Hazy                 |
| 9     | 29.535     | 72.0         | 73.0    | 54.5      | ..                   | ..       | W.                     | Clear                |
| 10    | 29.563     | 72.9         | 74.1    | 52.8      | ..                   | ..       | W.                     | Ditto                |
| 11    | 29.539     | 78.7         | 80.5    | 58.0      | ..                   | ..       | N. W.                  | ∩ scattered          |
| 12    | 29.491     | 85.0         | 87.0    | 63.5      | ..                   | ..       | W.                     | Clear                |
| 13    | 29.459     | 86.7         | 87.3    | 64.5      | ..                   | ..       | W.                     | Ditto                |
| 14    | 29.481     | 81.5         | 82.0    | 64.6      | ..                   | ..       | N. W.                  | ∩ scattered          |
| 15    | 29.475     | 76.8         | 78.0    | 54.0      | ..                   | ..       | N. W.                  | Clear                |
| 16    | 29.485     | 76.7         | 77.4    | 54.8      | ..                   | ..       | N. W.                  | Ditto                |
| 17    | 29.535     | 77.8         | 78.2    | 56.6      | ..                   | ..       | W.                     | Ditto                |
| 18    | 29.525     | 77.9         | 78.5    | 56.4      | ..                   | ..       | W.                     | ∩ very few scattered |
| 19    | 29.533     | 77.6         | 78.5    | 56.9      | ..                   | ..       | N. W.                  | ∩ scattered          |
| 20    | 29.531     | 82.3         | 83.8    | 59.7      | ..                   | ..       | E.                     | ∩ scattered all over |
| 21    | 29.525     | 85.5         | 87.0    | 61.6      | ..                   | ..       | E.                     | ∩ scattered          |
| 22    | 29.565     | 85.5         | 88.4    | 63.3      | ..                   | ..       | N.                     | Ditto                |
| 23    | 29.551     | 87.2         | 90.0    | 63.0      | ..                   | ..       | N. W.                  | ∩ scat. towards S.   |
| 24    | 29.539     | 87.5         | 88.5    | 65.5      | ..                   | ..       | S. E.                  | ∩ scattered          |
| 25    | 29.575     | 82.7         | 84.7    | 63.4      | ..                   | ..       | N.                     | ∩ scattered          |
| 26    | 29.519     | 84.5         | 85.2    | 62.0      | ..                   | ..       | N.                     | Clear                |
| 27    | 29.497     | 87.5         | 88.2    | 65.3      | ..                   | ..       | N.                     | Ditto                |
| 28    | 29.449     | 84.8         | 85.7    | 63.5      | ..                   | ..       | N. W.                  | Ditto                |
| 29    | 29.417     | 86.7         | 87.9    | 54.0      | ..                   | ..       | N. W.                  | Ditto                |
| 30    | 29.385     | 88.0         | 89.2    | 64.1      | ..                   | ..       | N. W.                  | Ditto                |
| 31    | 29.381     | 92.5         | 94.3    | 65.5      | ..                   | ..       | W.                     | Ditto                |
| Mean. | 29.482     | 81.1         | 82.2    | 66.2      | ..                   | ..       | ..                     | .....                |

Barometer observations corrected for capillarity only.

- Symbols. {  
 ∩ Cirris.  
 ∩ Cirro strata.  
 ∩ Cumuli.  
 ∩ Cumulo strata.  
 ∩ Nimbi or Nimbus.

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of March, 1854.

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |       | Aspect of the Sky. | Rain Gauges.                 |                        |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|------------------------------|------------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Mean. |                    | 3 Ft. 2 In. from the ground. | Direction of the Wind. |
| 1     | 29.317     | 84.8         | 84.5    | 64.0      | 85.0                 | 64.0     | 74.5  | Clear              | ..                           | W.                     |
| 2     | 29.375     | 82.5         | 82.0    | 61.0      | 81.5                 | 63.5     | 72.5  | Ditto              | ..                           | N. W.                  |
| 3     | 29.313     | 82.0         | 83.0    | 62.2      | 82.3                 | 63.0     | 72.65 | Ditto              | ..                           | S. W.                  |
| 4     | 29.267     | 89.0         | 88.5    | 71.6      | 88.5                 | 63.9     | 76.2  | Ditto              | ..                           | S. E.                  |
| 5     | 29.311     | 79.5         | 80.2    | 70.6      | 81.0                 | 62.0     | 71.5  | ~ a few scatd.     | ..                           | E.                     |
| 6     | 29.483     | 78.9         | 77.5    | 56.0      | 78.0                 | 61.9     | 69.95 | Hazy               | ..                           | N. W.                  |
| 7     | 29.477     | 76.6         | 76.2    | 55.0      | 75.5                 | 50.5     | 63.0  | Clear              | ..                           | N. W.                  |
| 8     | 29.411     | 74.8         | 73.0    | 57.8      | 74.7                 | 54.0     | 64.35 | ~ all over         | ..                           | N.                     |
| 9     | 29.505     | 77.0         | 76.8    | 55.5      | 76.0                 | 55.0     | 65.5  | Clear              | ..                           | W.                     |
| 10    | 29.497     | 79.8         | 80.8    | 61.4      | 79.5                 | 55.0     | 67.25 | ~ scatd. in z.     | ..                           | W.                     |
| 11    | 29.475     | 86.5         | 87.4    | 63.5      | 86.2                 | 61.0     | 73.6  | Scattered          | ..                           | N. W.                  |
| 12    | 29.453     | 90.0         | 90.6    | 67.2      | 91.5                 | 69.0     | 80.25 | Clear              | ..                           | W.                     |
| 13    | 29.395     | 91.0         | 91.0    | 69.5      | 90.5                 | 68.0     | 79.25 | Hazy               | ..                           | W.                     |
| 14    | 29.433     | 86.5         | 86.0    | 63.9      | 88.5                 | 66.5     | 77.5  | Scattered          | ..                           | N. W.                  |
| 15    | 29.381     | 83.3         | 83.0    | 56.5      | 83.0                 | 61.5     | 72.25 | Clear              | ..                           | N. W.                  |
| 16    | 29.409     | 82.5         | 82.5    | 57.4      | 82.0                 | 58.8     | 70.4  | ~ scattered        | ..                           | N. W.                  |
| 17    | 29.489     | 84.8         | 84.8    | 57.8      | 84.0                 | 53.5     | 71.25 | Clear [scatd.      | ..                           | N. W.                  |
| 18    | 29.453     | 85.0         | 85.2    | 58.2      | 84.5                 | 60.5     | 72.5  | ~ very few         | ..                           | W.                     |
| 19    | 29.469     | 88.5         | 89.2    | 59.0      | 89.5                 | 60.5     | 75.0  | ~ scatd. [o'er     | ..                           | N. W.                  |
| 20    | 29.449     | 86.5         | 87.2    | 65.5      | 86.5                 | 61.0     | 73.75 | ~ scatd. all       | ..                           | E.                     |
| 21    | 29.451     | 89.5         | 90.5    | 64.0      | 90.0                 | 67.0     | 78.5  | ~ scattered        | ..                           | S. E.                  |
| 22    | 29.485     | 91.0         | 91.5    | 66.8      | 91.0                 | 66.0     | 78.5  | Ditto              | ..                           | S.                     |
| 23    | 29.517     | 93.0         | 93.4    | 67.0      | 92.5                 | 71.0     | 81.75 | Ditto              | ..                           | N. W.                  |
| 24    | 29.505     | 88.0         | 86.8    | 66.9      | 86.0                 | 71.5     | 78.75 | ~ all over         | ..                           | N. W.                  |
| 25    | 29.505     | 88.5         | 88.4    | 66.7      | 87.5                 | 71.5     | 79.5  | Clear              | ..                           | N. W.                  |
| 26    | 29.465     | 90.6         | 91.2    | 64.0      | 91.2                 | 66.0     | 78.6  | Ditto              | ..                           | N.                     |
| 27    | 29.421     | 94.2         | 94.0    | 65.8      | 93.5                 | 67.0     | 80.25 | Clear              | ..                           | N. W.                  |
| 28    | 29.385     | 90.4         | 90.5    | 63.5      | 90.0                 | 68.0     | 79.0  | Ditto              | ..                           | N. W.                  |
| 29    | 29.335     | 92.9         | 93.5    | 65.3      | 92.5                 | 69.0     | 80.75 | Ditto              | ..                           | N. W.                  |
| 30    | 29.337     | 94.0         | 95.5    | 66.0      | 94.4                 | 70.0     | 82.2  | Ditto              | ..                           | N. W.                  |
| 31    | 29.311     | 98.2         | 99.9    | 77.4      | 98.4                 | 75.5     | 86.95 | Ditto              | ..                           | W.                     |
| Mn.   | 29.422     | 86.4         | 86.6    | 63.5      | 85.6                 | 64.6     | 75.1  | ....               | ..                           | ..                     |

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P. Agra, for the Month of April, 1854.*

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |                        | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Direction of the Wind. |                    |
| 1     | 29.439     | 87.9         | 89.5    | 65.0      | ..                   | ..       | E.                     | Clear              |
| 2     | 29.427     | 89.5         | 90.2    | 66.0      | ..                   | ..       | E.                     | Ditto              |
| 3     | 29.383     | 92.0         | 93.2    | 66.3      | ..                   | ..       | W.                     | Ditto              |
| 4     | 29.329     | 90.5         | 92.0    | 65.0      | ..                   | ..       | S. W.                  | ∩ scattered        |
| 5     | 29.367     | 92.2         | 93.0    | 68.5      | ..                   | ..       | W.                     | Clear              |
| 6     | 29.277     | 94.0         | 94.8    | 66.0      | ..                   | ..       | N. W.                  | ∩ scattered        |
| 7     | 29.279     | 92.0         | 91.8    | 72.3      | ..                   | ..       | N.                     | Clear              |
| 8     | 29.277     | 91.0         | 91.6    | 65.9      | ..                   | ..       | W.                     | Ditto              |
| 9     | 29.289     | 89.0         | 89.6    | 62.8      | ..                   | ..       | N.                     | ∩ scattered        |
| 10    | 29.309     | 86.0         | 87.0    | 61.0      | ..                   | ..       | N. W.                  | Clear              |
| 11    | 29.333     | 86.0         | 87.4    | 61.5      | ..                   | ..       | N. W.                  | Ditto              |
| 12    | 29.401     | 84.0         | 83.5    | 65.5      | ..                   | ..       | N. E.                  | ∩ all over         |
| 13    | 29.305     | 89.0         | 89.8    | 64.5      | ..                   | ..       | N. W.                  | Clear              |
| 14    | 29.299     | 90.1         | 91.0    | 65.0      | ..                   | ..       | N. W.                  | ∩ scattered        |
| 15    | 29.269     | 87.8         | 89.2    | 62.3      | ..                   | ..       | N. W.                  | Clear              |
| 16    | 29.309     | 86.0         | 86.8    | 60.6      | ..                   | ..       | N. W.                  | ~ a few to N.      |
| 17    | 29.357     | 85.0         | 86.4    | 59.0      | ..                   | ..       | N. W.                  | Clear              |
| 18    | 29.389     | 87.8         | 89.0    | 62.0      | ..                   | ..       | N. W.                  | Ditto              |
| 19    | 29.383     | 87.5         | 88.0    | 60.3      | ..                   | ..       | N.                     | ∩ all over         |
| 20    | 29.329     | 88.9         | 90.0    | 65.4      | ..                   | ..       | E.                     | Clear              |
| 21    | 29.295     | 93.5         | 94.4    | 67.0      | ..                   | ..       | N. W.                  | Ditto              |
| 22    | 29.311     | 92.0         | 93.4    | 63.7      | ..                   | ..       | N.                     | Ditto              |
| 23    | 29.305     | 92.0         | 92.8    | 64.0      | ..                   | ..       | N. W.                  | Ditto              |
| 24    | 29.283     | 91.3         | 92.2    | 63.9      | ..                   | ..       | N. W.                  | Ditto              |
| 25    | 29.355     | 94.5         | 95.8    | 71.4      | ..                   | ..       | N. E.                  | Ditto              |
| 26    | 29.339     | 97.0         | 98.0    | 67.5      | ..                   | ..       | N. W.                  | Ditto              |
| 27    | 29.397     | 97.0         | 98.0    | 65.0      | ..                   | ..       | N. W.                  | Ditto              |
| 28    | 29.299     | 94.0         | 95.9    | 63.3      | ..                   | ..       | N. W.                  | Ditto              |
| 29    | 29.253     | 93.0         | 93.9    | 64.0      | ..                   | ..       | N. W.                  | Ditto              |
| 30    | 29.425     | 94.0         | 94.6    | 63.0      | ..                   | ..       | N.                     | Ditto              |
| Mean. | 29.333     | 90.4         | 91.4    | 64.5      | ..                   | ..       | ..                     | ..                 |

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P. Agra, for the Month of April, 1854.*

## Observations at apparent Noon.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |                        | Aspect of the Sky.           |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|------------------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Direction of the Wind. |                              |
| 1     | 29.405     | 91.5         | 94.4    | 66.4      | ..                   | ..       | E.                     | Clear                        |
| 2     | 29.391     | 92.6         | 93.2    | 67.0      | ..                   | ..       | N. E.                  | Ditto                        |
| 3     | 29.351     | 96.7         | 98.8    | 67.0      | ..                   | ..       | W.                     | Ditto                        |
| 4     | 29.291     | 99.5         | 101.3   | 66.5      | ..                   | ..       | W.                     | Ditto                        |
| 5     | 29.349     | 97.4         | 98.7    | 69.0      | ..                   | ..       | N. W.                  | Ditto                        |
| 6     | 29.233     | 99.0         | 99.8    | 67.7      | ..                   | ..       | N. W.                  | ∩ very few scattered         |
| 7     | 29.253     | 95.4         | 94.9    | 73.0      | ..                   | ..       | N.                     | ∩ scattered in zenith        |
| 8     | 29.237     | 94.6         | 94.4    | 68.9      | ..                   | ..       | W.                     | Clear                        |
| 9     | 29.257     | 93.4         | 94.2    | 64.0      | ..                   | ..       | N. W.                  | scattered                    |
| 10    | 29.295     | 91.0         | 91.6    | 63.4      | ..                   | ..       | N. W.                  | Clear                        |
| 11    | 29.301     | 90.6         | 91.5    | 62.8      | ..                   | ..       | N. W.                  | ∩ towards W.                 |
| 12    | 29.271     | 89.8         | 91.4    | 67.3      | ..                   | ..       | S. E.                  | ∩ towards N.<br>∩ towards E. |
| 13    | 29.285     | 92.0         | 92.7    | 67.0      | ..                   | ..       | N. W.                  | ∩ scattered                  |
| 14    | 29.271     | 93.0         | 94.2    | 67.5      | ..                   | ..       | N. W.                  | Ditto                        |
| 15    | 29.239     | 92.5         | 94.1    | 67.0      | ..                   | ..       | N. W.                  | Ditto                        |
| 16    | 29.275     | 90.5         | 91.1    | 66.0      | ..                   | ..       | N. W.                  | ∩ a few to N.                |
| 17    | 29.341     | 90.0         | 90.7    | 61.5      | ..                   | ..       | N.                     | Clear                        |
| 18    | 29.363     | 92.5         | 92.7    | 62.4      | ..                   | ..       | N. W.                  | Ditto                        |
| 19    | 29.331     | 90.1         | 92.7    | 64.3      | ..                   | ..       | N. E.                  | ∩ all over                   |
| 20    | 29.307     | 94.0         | 95.6    | 71.6      | ..                   | ..       | E.                     | Clear                        |
| 21    | 29.273     | 98.4         | 99.8    | 64.5      | ..                   | ..       | N. W.                  | Ditto                        |
| 22    | 29.281     | 98.2         | 98.6    | 64.0      | ..                   | ..       | N.                     | Ditto                        |
| 23    | 29.283     | 98.5         | 99.2    | 65.0      | ..                   | ..       | N. W.                  | Ditto                        |
| 24    | 29.271     | 96.0         | 97.8    | 63.0      | ..                   | ..       | N. W.                  | Ditto                        |
| 25    | 29.345     | 98.9         | 100.4   | 71.5      | ..                   | ..       | N. E.                  | Ditto                        |
| 26    | 29.321     | 101.7        | 102.7   | 70.0      | ..                   | ..       | N. W.                  | Ditto                        |
| 27    | 29.381     | 99.0         | 100.2   | 67.6      | ..                   | ..       | N. W.                  | Ditto                        |
| 28    | 29.263     | 98.9         | 98.5    | 70.0      | ..                   | ..       | N. W.                  | Ditto                        |
| 29    | 29.237     | 96.8         | 97.5    | 70.0      | ..                   | ..       | S.                     | Ditto                        |
| 30    | 29.371     | 97.6         | 98.0    | 64.8      | ..                   | ..       | N.                     | Ditto                        |
| Mean. | 29.302     | 95.0         | 96.0    | 66.6      | ..                   | ..       | ..                     | ..                           |



Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of April, 1854.

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |       | Aspect of the Sky.    | Rain Gauges.                 |                        |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|-----------------------|------------------------------|------------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Mean. |                       | 3 Ft. 2 In. from the ground. | Direction of the Wind. |
| 1     | 29.339     | 98.9         | 99.5    | 73.0      | 98.8                 | 74.0     | 86.4  | Clear                 | ..                           | N.                     |
| 2     | 29.325     | 99.5         | 100.6   | 70.0      | 100.0                | 75.0     | 87.5  | Ditto                 | ..                           | N. E.                  |
| 3     | 29.271     | 103.0        | 102.8   | 67.5      | 102.0                | 74.0     | 88.0  | Ditto                 | ..                           | N.W.                   |
| 4     | 29.251     | 100.5        | 99.5    | 69.5      | 101.0                | 79.0     | 90.0  | Hazy                  | ..                           | N.                     |
| 5     | 29.261     | 101.5        | 101.5   | 71.4      | 101.0                | 83.5     | 92.25 | Ditto                 | ..                           | N.W.                   |
| 6     | 29.171     | 101.0        | 100.5   | 69.8      | 102.0                | 83.5     | 92.75 | ∪ all over            | ..                           | N.W.                   |
| 7     | 29.197     | 99.0         | 98.6    | 76.5      | 98.0                 | 83.0     | 90.85 | ∪ scattered in zenith | ..                           | N.W.                   |
| 8     | 29.135     | 99.5         | 98.0    | 69.5      | 98.0                 | 81.9     | 89.95 | ∪ in zenith           | ..                           | N.W.                   |
| 9     | 29.203     | 96.8         | 97.2    | 64.8      | 98.0                 | 78.0     | 88.0  | ∪ scattered           | ..                           | W.                     |
| 10    | 29.243     | 93.1         | 91.5    | 63.5      | 93.0                 | 75.8     | 84.4  | Hazy [W.              | ..                           | N.                     |
| 11    | 29.244     | 96.4         | 95.8    | 65.3      | 97.0                 | 72.5     | 84.75 | ∪ towards             | ..                           | N.W.                   |
| 12    | 29.211     | 96.5         | 97.0    | 69.2      | 96.0                 | 80.5     | 88.25 | ∪ all over            | ..                           | N.                     |
| 13    | 29.215     | 93.4         | 93.5    | 66.9      | 96.0                 | 76.5     | 86.25 | ∪ to E. and N.        | ..                           | N.W.                   |
| 14    | 29.225     | 97.2         | 97.0    | 69.0      | 96.3                 | 81.0     | 88.65 | ∪ scattered           | ..                           | N.W.                   |
| 15    | 29.181     | 95.2         | 94.5    | 65.0      | 95.0                 | 74.5     | 84.75 | ∪ ditto               | ..                           | N.W.                   |
| 16    | 29.207     | 94.0         | 94.5    | 67.0      | 95.0                 | 72.6     | 83.8  | ∪ a few to N.         | ..                           | N.                     |
| 17    | 29.289     | 94.0         | 94.6    | 62.0      | 93.5                 | 71.0     | 82.25 | Clear                 | ..                           | W.                     |
| 18    | 29.305     | 98.5         | 98.5    | 65.9      | 98.0                 | 72.0     | 85.0  | Ditto                 | ..                           | N.W.                   |
| 19    | 29.241     | 97.0         | 97.5    | 69.0      | 97.0                 | 78.0     | 87.5  | ∪ to E. and W.        | ..                           | N. E.                  |
| 20    | 29.225     | 99.8         | 98.5    | 71.7      | 98.0                 | 76.5     | 87.25 | Clear                 | ..                           | E.                     |
| 21    | 29.183     | 101.1        | 101.3   | 68.0      | 100.5                | 80.5     | 90.5  | Ditto                 | ..                           | N.W.                   |
| 22    | 29.181     | 101.7        | 101.6   | 66.0      | 100.0                | 77.0     | 88.5  | Ditto                 | ..                           | N.W.                   |
| 23    | 29.171     | 102.2        | 102.9   | 67.0      | 102.0                | 78.0     | 90.0  | Ditto                 | ..                           | N.W.                   |
| 24    | 29.211     | 102.9        | 103.5   | 67.0      | 102.5                | 79.0     | 90.75 | Ditto                 | ..                           | N.W.                   |
| 25    | 29.273     | 102.0        | 10.25   | 72.0      | 102.0                | 85.5     | 93.75 | Ditto                 | ..                           | N.E.                   |
| 26    | 29.243     | 105.6        | 106.0   | 71.9      | 107.8                | 83.5     | 95.65 | Ditto                 | ..                           | N.W.                   |
| 27    | 29.309     | 103.0        | 102.7   | 66.2      | 103.7                | 81.5     | 92.6  | Ditto                 | ..                           | N.W.                   |
| 28    | 29.163     | 103.1        | 102.5   | 65.5      | 101.5                | 78.5     | 90.0  | Ditto                 | ..                           | N.W.                   |
| 29    | 29.197     | 100.5        | 99.7    | 66.0      | 99.0                 | 78.5     | 88.75 | Ditto                 | ..                           | N.W.                   |
| 30    | 29.219     | 101.7        | 102.0   | 67.5      | 101.5                | 79.0     | 90.25 | Ditto                 | ..                           | N.W.                   |
| Mn.   | 29.229     | 99.2         | 99.1    | 68.1      | 99.1                 | 78.1     | 88.63 | ..                    | ..                           | ..                     |



A SKETCH MAP

# SOHAUT, BOONAIR, CHUMLA.

## TO AID THE SEARCH FOR NUSA, MEROS, AND AORNOS.

*Constructed chiefly from the reports of travellers*

*and*  
*Native assistance by Sanskrit Records*

*(Signed) F. Holt*



Pishawar Fort 34° 0' 41" N Lat.

NOTE The Bars from which the map is drawn

are the same as those of the map of the

Sohanpur region, and the same as those of the

map of the Sohanpur region, and the same as those of the

Scale 16 Br Miles Unit  
Drop of the Bars Measurements for the deflection



